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U.S. Department
of Transportation
**Federal Railroad
Administration**

# Railroad Employee Fatalities Investigated by the Federal Railroad Administration in 1980

Office of Safety

COMPLETED

181

ORIGINAL

DOT/FRA/ORRS February 1982

# INTRODUCTION

This report represents the Federal Railroad Administration's findings in the investigation of railroad employee fatalities during 1980. Not included are fatalities that occurred during train operation accidents; these are reported under another type of investigation.

The purpose of this report is to direct public attention to the hazards inherent in day-to-day operations of railroads. It provides information in support of the overall Federal program to promote the safety of railroad employees. It also furthers the cause of safety by supplying all interested parties information which will help prevent recurrent accidents.

Joseph W. Walsh
Chairman
Railroad Safety Board

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| ITC | 1 |
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| NW | 6 |
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REPORT: 1

RAILROAD: Chicago, Milwaukee, St. Paul and Pacific Railroad

LOCATION: Portage, Wisconsin

DATE: January 1, 1980

## The Accident

A 36-year-old switchman was fatally injured on January 1, 1980 at about 7:45 p.m. in Portage, Wisconsin. Employed by the Chicago, Milwaukee, St. Paul and Pacific Railroad (MILW), the switchman had 13 years of service.

## Background

Portage Yard is a classification yard operated by the MILW. The yard consists of 10 tracks, extending east to west. The tracks are numbered 2 through 11 from the south. Flat switching operations are conducted at Portage Yard and all switches in the accident area are located on the north side of the lead track. The locomotive used for yard switching operations was equipped with a radio and each member of the switching crew had a portable radio. All switching movements were directed by radio.

The switchman was issued a copy of the carrier's operating rules and the safety rules. He was last examined on the operating rules on June 20, 1979. His last physical examination was held in November 1979.

## Circumstances of the Accident

A yard crew reported for duty at 3:59 p.m. on the day of the accident and consisted of an engineer, a footboard yardmaster, and two switchmen.

Before the accident the locomotive was coupled to the east end of four cars, a caboose, and 12 cars on the lead track and track No. 4. The switchman was about 200 feet east of the footboard yardmaster who was at the track No. 4 switch. The 12 cars were to be switched onto track No. 4. The switchman was to uncouple the cars from the caboose while they were moving westward and let the cars roll onto track No. 4.

The footboard yardmaster was looking at the switch list during the movement. He looked in the direction of the switchman and saw the switchman's lantern bouncing on the ground. The footboard yardmaster immediately instructed the engineer to stop the movement. He then proceeded eastward about 120 feet and found the switchman. He had been run over by the caboose and the west truck of the east box car next to the caboose. He was pronounced dead at the scene.

## Applicable Rules

### General Rules

M. Employes must exercise care to prevent injury to themselves or others.

. . . . . . .

Employes must expect the movement of trains, engines, cars or other moveable equipment at any time, on any track, in either direction.

(The Consolidated Code of Operating Rules)

## Analysis

Post-accident investigation and inspection revealed no equipment defects, or unusual track or ground conditions which could have contributed to the accident.

There were no witnesses to the accident and the exact circumstances of the accident could not be determined.

## Cause

The switchman apparently slipped, or tripped and fell, between the west end of the caboose and the first car west of the caboose.

REPORT: 2

RAILROAD: Southern Pacific Transportation Company

LOCATION: San Francisco, California

DATE: January 3, 1980

## The Accident

A 64-year-old switchman was fatally injured on January 3, 1980 at approximately 12:00 a.m. in San Francisco, California. Employed by the Southern Pacific Transportation Company (SP), the switchman had 30 years of service.

## Background

The accident occurred near the south end of track No. 108 in Bayshore Yard. Track No. 108 is a 4,000-foot departure yard track on the west side of the yard and is connected at the south end to a lead track. The lead track connects to track No. 86. A switchmen's locker room is located west of track No. 108 at the south end of the yard.

The switchman passed an examination on the carrier's "Rules and Regulations of the Transportation Department" on June 6, 1977. His last physical examination was administered on January 2, 1979. He attended an SP safety meeting on June 12, 1979.

## Circumstances of the Accident

The yard crew consisted of an engineer, a foreman, and three switchmen. The crew had been on duty for four hours after completing the required off-duty period.

Prior to the accident, the crew pulled 33 cars and a caboose south on track No. 108 and uncoupled the caboose about 500 feet north of the switchmen's locker room.

The switchman was last seen by the other crew members on the east side of track No. 108, opposite the locker room. He was assisting in the preparation of six "bad order" cars which were to be switched to track No. 86.

After this switching operation was completed, one of the switchmen walked northward toward the caboose. He found the switchman across the east rail of track No. 108 about 100 feet south of the caboose. The east wheels of two freight cars had severed the switchman's legs and his right arm.

## Applicable Rules

### General Notice

Safety is of the first importance in the discharge of duty.

. . . . . . .

### General Rules

M. . . . employes . . . must exercise care to avoid injury to themselves or others . . . .

N. Employes must expect the movement of trains, engines or cars at any time, on any track, in either direction.

Employes must know that it is safe before fouling, walking between or crossing tracks by looking in both directions . . . .

(Southern Pacific Transportation Company, Rules and Regulations of the Transportation Department)

## Analysis

There were no witnesses to the accident and the exact circumstances of the accident could not be determined. The employee was run over by the east wheels of two cars being switched onto track No. 108.

## Cause

The accident was caused by the employee's failure to stand clear of rolling equipment being switched onto track No. 108.

REPORT: 3

RAILROAD: Southern Railway Company

LOCATION: Alexandria, Virginia

DATE: January 12, 1980

## The Accident

A 52-year-old conductor was fatally injured on January 12, 1980 at about 9:50 a.m. in Alexandria, Virginia. Employed by the Southern Railway Company (SOU), the employee had 29 years of service. Weather conditions were cold, cloudy, and windy. The ground was wet and muddy.

## Background

The accident occurred at the Potomac Electric Power Company plant, located north of the industrial branchline track operated by Southern Railway. A single lead track, extending east to west, enters the plant and connects with the industrial lead track. Located north of the switch is a scale house. West of the switch are five yard tracks, Nos. 1 through 5 from south to north, and several auxiliary tracks that diverge from the lead track. Track grade is nearly level in this area.

The head and rear brakemen were equipped with portable radios.

The conductor was last examined on the carrier's operating rules on January 20, 1979. His last eye examination was on August 20, 1979.

## Circumstances of the Accident

Before the accident the conductor and the rear brakeman were in the scale house. The accident occurred at the switch which connects the lead track to the plant's yard lead, south of the scale house. The head brakeman lined the switch and crossed to the south side of the track. A train of 28 loaded hopper cars was being shoved westward toward the plant at about 3 mph. When the lead car approached the scale house, the conductor ran out and crossed in front of the train. He tried to open the angle cock to apply the brakes, and slipped and fell on the south rail. The conductor was run over by the four south wheels of the second car.

The head brakeman and the rear brakeman saw the accident and immediately radioed the engineer to stop the train and call for an ambulance. The engineer applied the emergency brakes and informed the yardmaster of the accident and the assistance that was required.

The conductor sustained severe injuries. His left shoulder and chest were crushed and his left leg was severed above the ankle.

## Applicable Rules

M. . . . . . . . .

Employees must not do any work in a manner that will jeopardize their own safety, or that of their fellow employees . . . .

. . . . . . . .

(Southern Railway Operating Rules)

## Analysis

The conductor attempted to stop the train by opening the angl cock to apply the brakes. He was facing the lead end of the car and walking backward. He slipped and fell on the wet and muddy ground.

It could not be determined why the conductor wanted to stop the car movement at that point or why he did not use the radio. The two brakemen were carrying radios to assist in directing train movements within the plant.

## Cause

The employee placed himself in the path of moving equipment, slipped, and fell onto the rail.

REPORT: 4

RAILROAD: Norfolk and Western Railway Company

LOCATION: Norfolk, Virginia

DATE: January 18, 1980

## The Accident

A 50-year-old conductor was fatally injured on January 18, 1980 at about 5:20 a.m. in Lamberts Point Yard in Norfolk, Virginia. Employed by the Norfolk and Western Railway Company, the conductor had 25 years of service. There was a light rain falling.

## Background

The switching crew consisted of a conductor, an engineer, a fireman, and two brakemen. They went on duty at 11:00 p.m. on January 17, 1980 at Lamberts Point Yard. They performed switching in the Main Yard and Barney Yard until about 3:35 a.m., on January 18. They were then instructed to take their lunch period. During their lunch period a coal train arrived from the west and pulled into track No. 13.

Lamberts Point Yard is used for loading coal from rail cars into vessels for intercoastal and overseas shipments. Coal trains arriving at Lamberts Point Yard are classified into the Main Yard and then moved into Barney Yard. The switch at the west entrance to track No. 13 is located on the south lead to Barney Yard.

The conductor was last examined on the carrier's Code of Operating Rules on April 26, 1979. He attended a safety committee meeting on November 22, 1979. He passed his last physical examination on November 6, 1977.

## Circumstances of the Accident

Following the lunch period, the switching crew was instructed to take 41 loaded coal cars from Track A in the Main Yard to the south side of Barney Yard. The fireman and the field brakeman coupled the locomotive units to the cars on Track A, and the head brakeman lined the switch for a westward movement. The cut of cars moved west on track No. 10 to clear the crossovers to the south lead. The field brakeman lined the switch at the west end of the crossover and the conductor lined the switch at the east end. The field brakeman radioed a signal to the engineer to proceed eastward. The brakeman and conductor boarded the lead car (NW 11906) and moved to the top of the car. The cars were moving at about 8 to 10 mph on level track. When the cars were about 50 feet west of track No. 13 switch, the brakeman and conductor observed the switch was lined for movement into that track and immediately gave hand stop signals to the engineer. The signals were apparently not observed, and the movement continued about 270 feet into track No. 13 and struck caboose (NW 518689) coupled to the rear of 91 loaded coal cars. The brakeman jumped off on the north side and fractured his right ankle. The conductor remained on the car and was partially buried under coal when the caboose rode up over the top of the lead car. The conductor was pronounced dead at the scene. Death was attributed to t traumatic asphyxia.

## Applicable Rules

104. The position of a switch or derail being used is the responsibility of the employe handling the switch or derail. This, however, does not relieve other crew members of responsibility if they are in place to observe the position of switches and derails . . . .

(Norfolk and Western Railway Company Operating Rules)

## Analysis

The switch to track No. 13 was equipped with a non-reflecting, unlighted target, and, as a result, the yard crew members did not see its position in time to make a normal stop prior to reaching it. The crew was responsible for the proper position of the switch prior to making the movement.

## Cause

The conductor and brakeman failed to line the switch properly for the movement of the cars to the assigned track.

REPORT: 5

RAILROAD: St. Louis-San Francisco Railway Company

LOCATION: Jonesboro, Arkansas

DATE: January 18, 1980

## The Accident

A 25-year-old machine operator helper was fatally injured on January 18, 1980 at about 11:00 a.m. in Jonesboro, Arkansas. Employed by the St. Louis-San Francisco Railway Company, the helper had 18 months of service.

## Background

The accident occurred on a track designated as the short pass track, about 1,500 feet north of the yard office building. The machine operator helper went on duty in the Jonesboro Yard at 7:00 a.m. on the day of the accident. The helper assisted the machine operator and observed operation of the machine.

The track-cleaning machine, a Marmon Transmotive type YP-RT-A2, was placed in service on August 28, 1979. The machine weighs 60,000 pounds and is equipped with a diesel engine which generates power to the self-propelled unit, the hydraulic system, and the electric motors. When the machine is on the tracks in an operating position, it is supported on four 20-inch diameter roadway wheels and tires and is guided by four 10-inch diameter steel-flanged wheels. It is designated as machine No. 904.

At the commencement of his employment the machine operator helper was given a copy of the carrier's Rules for the Maintenance-of-Way and Structures.

## Circumstances of the Accident

While cleaning the short pass track, machine No. 904 passed over an 833-foot section twice. On each pass, heavy debris was brushed into the pick-up buckets, clogging the machine. The machine had to be stopped and the obstructions removed.

Beginning the third pass over this section of track, the machine was operating northward when it became clogged. The operation was stopped 468 feet north of the south end of the track. The operator was standing on the walkway outside the compartment.

He reached through the side window and operated the controls, stopping the machine. The obstruction was located at the funnel-shaped hopper near the vertex of the bucket conveyor, about 6 feet above the walkway. The helper climbed onto the safety railing facing the side of the buckets, reached over the stationary support of the bucket conveyor, and, using a shovel, removed the obstruction. As the debris loosened, it fell onto the belt-type conveyor. The helper remained in this position and told the operator to start the conveyor. The operator reached through the window and pressed the controls, activating the conveyors. He heard the helper call out, and turned to see him caught between the revolving buckets and the stationary support of the conveyor.

The helper was pronounced dead at the scene.

## Applicable Rules

321. Responsibility and Duty. They will perform such duties as directed.

. . . . . . . .

(b) Operator of machine must be in his proper position and give his entire attention to the operation of the machine while it is in motion . . . .

## General Safety Rules

651. Constant presence of mind to insure safety to themselves and others is the primary duty of all employes. The company does not expect its employes to incur any risk whatever from which, by exercise of their own judgment and personal care, they can protect themselves and others.

653. Employes are not to rely on the watchfulness of others but must protect themselves when and where their own safety is involved.

710. Where guard is required, employes must not operate a machine or appliance unless properly guarded. Absence of or defect in the guarding arrangement should be reported to foreman or superior officer. Guards must not be removed except for repairs, and then only on authority of foreman.

(St. Louis-San Francisco Railway Company Rules for the Maintenance of Way and Structures)

## Analysis

To maintain a full view of the track cleaning machine's operation, the operator remained outside the control compartment and operated the controls through the side window. The lettering on the plates designating each control unit is positioned for view by the operator inside the compartment. If the lettering is viewed through the window, it is partially hidden, reversed, upside down, and difficult to read. When the helper directed the machine operator to start the conveyor, he apparently intended that only the belt conveyor be started. The machine operator activated the belt and bucket conveyor.

When placed in an open position, the hopper portion of the machine is equipped with a cover that forms a platform on which to stand when engaged in clearing an obstruction at the hopper. The helper was standing in an awkward position on the safety railing at the side of the bucket conveyor.

Track cleaning machine No. 904 was designed without an adequate guarding arrangement at the vertex of the bucket conveyor. The buckets attached to the conveyor are exposed to accidental contact while the conveyor is in motion.

## Cause

The employee failed to position himself on the appropriate platform to insure protection.

A contributing factor was the failure of the machine operator to be in his proper position, which reduced his ability to operate the appropriate controls.

REPORT: 6

RAILROAD: Columbus and Greenville Railway Company

LOCATION: Columbus, Mississippi

DATE: January 23, 1980

## The Accident

A 24-year-old brakeman was fatally injured when run over by a freight car on January 23, 1980 at about 1:15 p.m. in Columbus, Mississippi. Employed by the Columbus and Greenville Railway Company, the brakeman had 4 years and 2 months of service.

## Background

The accident occurred on an industrial lead track, designated as Moss Tie Lead, which connects to the main track at the south end. Five industrial tracks diverge from the lead track at the north end. In the accident area the lead has a slight descending grade from south to north. It had rained all the previous day, and the ground was muddy along the lead and industrial tracks.

The brakeman received a copy of the carrier's operating rules and safety rules at the time of his employment on November 27, 1975. He was examined on the operating rules, safety rules, and power brake rules during July and August 1978. He received his last physical examination on March 30, 1976.

## Circumstances of the Accident

The brakeman was a member of a yard switching crew that consisted of a conductor, an engineer, and a brakeman. The crew was on duty for 4 hours and 15 minutes before the accident.

Switching was being performed from the north. Two cars were switched onto the lead track, and two cars were placed on an industrial track. Three additional cars were switched to the lead track and coupled to the standing cars on the lead track. The brakeman lined a switch for a movement into one of the other industrial tracks. As the engine moved southward, the brakeman told the engineer to stop because five cars were rolling back on the lead track. The brakeman stated that he would go over and stop them.

About 45 seconds later, the brakeman instructed the engineer, via radio, to backup onto the lead track. After the engine was on the lead track, the engineer heard the brakeman say, "stop the cars--they are rolling." As a result of that message, the conductor proceeded to the location of the cars and found the brakeman lying across the track under the trailing truck of the second car from the north.

The brakeman sustained severe injuries: his body was severed at the waist. He was pronounced dead at the scene.

## Applicable Rules

227. Employees must not:

. . . . . . .

d) Get on or off by means other than steps, ladders, or handholds provided exclusively for that purpose . . . .

264. Employees must be alert to and protect themselves from:

. . . . . . .

b) Slipping, falling, or strain due to loss of handhold, footing or balance.

265. Employees must not:

. . . . . . .

b) Stand on coupler or coupler lever of car while operating handbrakes.

(Illinois Central Gulf Railroad Safety Rules)

103(b) Cars left standing on a track must be secured, applying sufficient handbrakes when necessary; . . . .

(Illinois Central Gulf Railroad Operating Rules)

## Analysis

Post-accident inspection of the equipment revealed no defects that could have contributed to the accident. The first, second, and third wheels on the west side of the second car showed evidence of having passed over the brakeman. There were no witnesses at the scene of the accident, and the exact circumstances could not be determined.

## Cause

The brakeman was in between the first and second car to apply the handbrake. He apparently lost his footing and fell between the first and second cars.

REPORT: 7

RAILROAD: Detroit, Toledo and Ironton Railroad Company

LOCATION: Hamler, Ohio

DATE: January 22, 1980

## The Incident

A 60-year-old conductor died on January 22, 1980 at approximately 1:00 p.m. in Hamler, Ohio. Employed by the Detroit, Toledo and Ironton Railroad Company, the conductor had 32 years of service.

## Background

On June 16, 1979, the conductor was given a physical examination. The conductor had a history of heart disease. On May 8, 1972, he had a heart attack that caused him to stay off duty until July 13, 1972. He was last examined on the Rules and Regulations of the Operating Department in October 1979.

## Circumstances of the Incident

The conductor was a member of a road freight crew that had been on duty for 2 1/2 hours before the incident. The crew was engaged in picking up 18 cars on the north transfer track. The conductor was last seen coupling cars near State Highway 18. A brakeman in the crew found the conductor lying face down along the highway, bleeding from his forehead.

## Applicable Rules

Not Applicable.

## Cause

The county coroner cited the cause of death as myocardial infarction.

The recurrence of a previous heart ailment caused the conductor to fall and strike his forehead.

REPORT: 8
RAILROAD: Burlington Northern
LOCATION: Havre, Montana
DATE: January 28, 1980

## The Accident

A 28-year-old carman was fatally injured when he was run over by a locomotive on January 28, 1980 at about 10:30 p.m. in Havre, Montana. Employed by Burlington Northern, the carman had 2 years of service. Temperature was -12°F.

## Background

The main line tracks at Havre are designated as north main and south main through the terminal. Movements over these tracks are governed by signals of a traffic control system. A classification yard is adjacent to and north of the two main tracks. Havre is designated as a 500-mile air brake inspection point.

The employee was promoted to the carman position in May 1978. There is no record of a rules examination. He passed a physical and visual examination in June 1977. The carman attended a safety meeting on the day of the accident.

## Circumstances of the Accident

On the day of the accident, the employee and another carman were instructed to make a rolling inspection of a westbound freight train departing on the north main track. They positioned themselves at a grade crossing near the west end of the yard. The second carman observed the north side of the departing train, while the employee remained on the south side.

Before the accident, a hostler and a switchman-pilot exchanged a locomotive unit on another westbound train located on yard track No. 1. They entered the south main track at the west end of the terminal and were operating the locomotive eastward. The single locomotive unit was being operated in reverse with the hostler and switchman-pilot in the control compartment at the west end. The locomotive was moving at an estimated speed of 10 mph. The rear headlight and bell were inoperative. Approaching the rail-highway crossing near the west end of the yard, the switchman-pilot left the control compartment and proceeded to the lead end of the locomotive. The hostler observed a stop signal given by the switchman-pilot's electric lantern and immediately made a full application of the independent air brake. The locomotive horn was not sounded approaching the rail-highway crossing.

The employee was found under the lead locomotive truck. He sustained severe injuries and died 50 minutes after arriving at the hospital.

## Applicable Rules

### On Or About Tracks

65. Employees must:

    a. Expect the movement of trains, engines, cars, or other movable equipment at any time, on any track, in either direction.

. . . . . . .

66. Employees must not:

    a. Walk, stand, or be foul of tracks except when required in the performance of duty.

(Burlington Northern Safety Rules)

### Engine Whistle Signals

15. The whistle must be sounded where required by rule or law . . . .

    (1) Approaching public crossings at grade.

17. . . . . . . .

    This signal must also be used frequently to warn trackmen and other employes when view is restricted by weather, curves, or other unusual conditions, . . . .

### Headlights

. . . . . . .

At night, when an engine is backing without cars . . . a white light must be displayed in the direction of movement.

## Use of Signals

30. . . . the engine bell must be rung . . . while passing through stations . . . while approaching public crossings at grade, . . . .

(The Consolidated Code of Operating Rules)

## Analysis

Blood on the south main track, about 20 feet east of the rail-highway crossing, indicated the location where the employee was struck by the locomotive. The carman on the opposite side of the departing westbound train stated that an empty flat car in the consist permitted him to observe the employee squatting between the rails of the south main track and also the approaching locomotive. He called a warning, but the train noise prevented the employee from hearing the warning.

A post-accident inspection revealed that the rear locomotive headlight was not operative because the headlight selector switch was in "multiple" position instead of "single" position. When this was corrected, the locomotive headlight functioned as intended. Because of the sub-zero temperature, the locomotive bell was not operative at the time of the accident. The bell operated the next morning in the engine house when the temperature was higher.

## Cause

The accident was caused by failure of the employee to stand clear of the main track during the approach of moving equipment.

Contributing factors were an inoperative locomotive headlight, an inoperative locomotive bell, and the failure of the hostler to comply with appropriate operating rules.

REPORT: 9

RAILROAD: Seaboard Coast Line Railroad

LOCATION: Chesson, Alabama

DATE: January 31, 1980

## The Incident

A 45-year-old trackman died January 31, 1980 at about 11:30 a.m. at Chesson, Alabama. Employed by the Seaboard Coast Line Railroad, the trackman had 12 years of service.

## Background

Work Extra 991 arrived at Chesson, Alabama, and prepared to switch cars at the sidings. The caboose and 10 rear cars of the train were uncoupled and left on the main track with the air brakes applied. The trackman was lying on a bunk, and two other trackmen were standing inside the caboose.

## Circumstances of the Incident

Work Extra 991 pulled 12 hopper cars loaded with ballast from the siding at Chesson. The 12 cars of ballast were uncoupled from the locomotive and allowed to roll westward on the main track. Two brakemen attempted to stop the cars by use of the hand brakes to prevent a collision with the 10 cars and the caboose. The 12 loaded cars struck the east end of the rear cars at about 5 mph. Buff forces transmitted through the cars caused the two trackmen standing inside the caboose to fall.

Immediately after the car movement stopped, one of the trackmen notified the conductor of Work Extra 991 that the other two employees were injured. The two employees received emergency medical treatment at the scene and were taken to a hospital. The trackman was pronounced dead on arrival at the hospital.

## Applicable Rules

Not Applicable.

## Cause

The medical examiner's report stated that the cause of death was cardiac arrest.

REPORT: 10

RAILROAD: Atchison, Topeka and Santa Fe Railway Company

LOCATION: Brownwood, Texas

DATE: February 7, 1980

## The Accident

A 40-year-old bridge and building mechanic was fatally injured on February 7, 1980 at about 2:20 p.m. in Brownwood, Texas. Employed by the Atchison, Topeka and Santa Fe Railway Company, the mechanic had 16 years of service.

## Background

At the east end of the Brownwood train yard, an 842-foot open-deck bridge (No. 345.8) spans a dry creek. The bridge was scheduled to be converted to a ballast-deck bridge. A right-of-way access road is located south of and parallel to the main track, bridge, and yard. A 7,200-volt power line is located south of and parallel to the bridge and road. The nearest 7,200-volt wire on the power line is about 36 feet above the ground. The maximum length of the extended derrick boom is 46 feet 10 inches, at an angle of approximately 63 degrees. The boom had the capability of extending 15 feet above the power line.

The crane had a warning sign displayed outside, which read, "Danger this machine is not insulated electrocution hazard." The sign on the truck read, "Danger Electrocution Hazard Keep Clear."

The employee had been issued copies of the carrier's Safety Rules, Rules Maintenance-of-Way and Structure, and Rules Operating Department. His last rules examination was on March 20, 1976. He usually attended the work crew safety meetings, and he was present at a safety meeting conducted on February 1, 1980. His last physical examination was held on April 1, 1970.

## Circumstances of the Accident

The bridge and building mechanic, three helpers, and two other mechanics were transferring bridge materials from a gondola car in the yard to a stock pile adjacent to the bridge, located 0.75 mile distant. A 1975 2.5-ton crane truck equipped with a Model 4TE46 National crane was used to transfer the materials. Thirteen piles of material had been placed adjacent to the bridge and the road, north of the power line.

At about 1:45 p.m., the mechanic placed the truck crane off the south edge of the road. He mounted the control stand on the driver's side to transfer a load of material to the ground. Two sling-loads of timber were placed 10 feet south of the power line without incident. As the third load was being transferred, two pieces of timber slipped from the sling and fell against the end of the truck bed. Shortly after, a loud crackling noise was heard and electrical arcs were observed between the truck crane and the ground. Four employees saw the mechanic jump from the crane and run to a set of controls on the opposite side. When he reached for the controls, an electric arc struck his hand and electrocuted him. He was pronounced dead at the scene.

## Applicable Rules

21. . . . high voltage wires on or near the right of way which may be dangerous. Employes must . . . take every precaution to avoid injury.

215. Crane or derrick operators must not attempt to lift a load without first receiving proper signal from ground man.

216. When one or more cranes or derricks are lifting the same load, one person shall be designated to direct all movements.

230. Take necessary precautions to avoid contact with telephone and guy wires. For power lines, minimum clearance between the lines and any part of crane or load shall be 10 feet.

(Safety Rules for Santa Fe Employes)

## Analysis

The employee had successfully transferred two sling-loads of timber without incident. When the third load began to slip, he adjusted the boom's length and/or angle to prevent further slippage. As a result, it touched the power line. The employee ran to the front of the crane and attempted to reach the controls to lower the boom. An electrical arc struck his right hand and threw him to the ground. Other employees who witnessed the incident had shouted to him to stay away from the crane.

## Cause

The accident was caused by failure of employee to stand clear of an electrically charged vehicle.

Contributing causes were the failure to designate one person to direct all movements, failure to take precautions to avoid contact with high-voltage wires; operating a crane or load line within 10 feet of a power line, and failure to be sure that the load to be picked up was properly secured for the lift.

REPORT: 11

RAILROAD: Norfolk and Western Railway Company

LOCATION: Harmon, Virginia

DATE: February 8, 1980

## The Accident

A 43-year-old brakeman was fatally injured on February 8, 1980 at about 7:10 p.m. on the Harmon Mining Corporation's siding in Harmon, Virginia. Employed by the Norfolk and Western Railway Company, the brakeman had 10 years of service.

## Background

The accident occurred on track No. 3 in the mine siding's loaded yard, which has three tracks connected at the east end of the main track. The loaded yard tracks are located south of the main track. In the accident area, track No. 3 has a descending grade of 1.97 percent eastward from the "tipple" loading facility to the switch.

The brakeman was a member of a road switching crew that consisted of a conductor, three brakemen, and an engineer. The crew had been on duty for 10 hours and 25 minutes prior to the accident.

The brakeman was last examined and passed a rules test on December 16, 1974. He last attended an instructional class on operating and safety rules, and timetable use on February 26, 1979. His last physical examination was administered on June 22, 1972.

## Circumstances of the Accident

The switching crew had been at the mine site for approximately 4 hours, placing empty cars and assembling loaded cars on track No. 2 for an outbound train. The switching operation included pulling 34 cars on track No. 3 eastward and leaving the 3 west cars on the east end of track No. 3 clear of the derail. The hand brakes on the three west cars were applied by crew members prior to the eastward movement. The brakeman was last seen standing between tracks No. 2 and No. 3.

As the remaining cars were being moved eastward on track No. 2, two loaded cars were released from the "tipple" by a coal company employee. Without warning, the two cars collided with three west cars. The impact of the collision was heard by the conductor and the brakeman. They saw the three standing cars move eastward as a result of the impact.

The conductor found the brakeman on the south side of the south rail, 13 feet east of the derail with his right leg caught between the rails. The brakeman sustained traumatic amputation of the lower abdomen, and the right hip and leg.

Approximately 15 to 20 minutes after the accident, an ambulance arrived and took the brakeman to Grundy Hospital, where he was pronounced dead.

## Applicable Rules

1051. Employees on or about tracks must be alert, watchful and keep out of danger, exercising care to avoid injury to themselves and others. Nothing in these rules is to be construed as relieving any employee from performing his full duty in this respect.

1052. Always look in both directions before stepping on or getting close to any track. When crossing tracks near standing equipment, always allow room to avoid injury in case of sudden movement. Crossing tracks immediately in front of moving trains, locomotives, cars, roadway equipment or motor cars is prohibited.

1121. . . . . . . . .

Take time while equipment is standing to see that coupling appliances are in place and in good order, and to make any necessary adjustments to insure proper coupling.

. . . . . . . .

When adjusting couplers or opening or closing knuckles, stand to the side rather than directly in front and keep feet out from under knuckles.

(Norfolk and Western Railway Company Safety Rules)

102(b). When the engine is to be detached where it is possible for cars to move, sufficient hand brakes must be applied to secure them before detaching the engine. When ready to start, hand brakes must not be released until it is known that the air brake system is properly charged.

103(h). . . . . . . . .

When equipment is set off or left standing, a sufficient number of hand brakes must be applied to secure same.

(Norfolk and Western Railway Company Operating Rules)

## Analysis

The first and second wheels on the south side of the lead truck of the first west car on track No. 3 showed evidence of having passed over the brakeman. There were no eyewitnesses to the accident. He was apparently opening the knuckle on the east end of the lead car when he was run over by the lead car of a standing cut of cars that was struck by rolling equipment.

A post-accident test by carrier officials disclosed that the two cars released by the coal company employee could be controlled by the hand brake on either car. Hand brake tests disclosed that each functioned as intended.

## Cause

The accident was caused by the failure of the brakeman to stand clear of rolling equipment.

REPORT: 12 -
RAILROAD: Union Pacific Railroad
LOCATION: Green River, Wyoming
DATE: February 11, 1980

## The Accident

A 40-year-old laborer was fatally injured on February 11, 1980 at about 2:15 p.m. near Green River, Wyoming. Employed by the Union Pacific Railroad, the laborer had 3 months of service. The weather was clear, and there was frozen snow on the ground.

## Background

In the accident area there are two main line tracks, No. 1 and No. 2, and a maintenance road adjacent to and north of track No. 1. At the time of the accident, track No. 2 was out of service for maintenance work.

The accident occurred on the maintenance road adjacent to track No. 1. The laborer was a member of an extra gang assigned to relay rail on a portion of a curve on track No. 2.

The Pettibone Speed Swing crane (Model PSS-38) is a rubber-tired, four-wheel drive unit designed for on or off-track operation. A boom attachment for handling heavy objects extends from the forward end of the machine. The crane operator is in an enclosed cab and the "tongman" works on the ground to pass hand signals for both the movement of the crane vehicle and the lifting of materials by the crane.

Extra gang employees are not required to have physical examinations. Rules examinations are not mandatory for extra gang employees. The employee attended a safety meeting on February 8, 1980. No other training is recorded.

## Circumstances of the Accident

From a position on the ground, the laborer was to assist the speed swing operator. After removing the north rail from track No. 2, the speed swing was removed from the track to work in the opposite direction. The laborer mounted the speed swing and rode across track No. 1 to the adjacent maintenance road. After turning the machine, the operator came to a complete stop, and the laborer dismounted. The laborer gave an all clear proceed signal to the operator.

After giving the signal, the laborer turned to walk ahead of the machine, lost his footing on the packed surface of the frozen snow, and fell against the front wheel of the moving vehicle. He was pulled under the rubber tire of the machine, which passed over him.

The speed swing operator received a stop signal from nearby workmen and was notified that the laborer was under the machine.

The laborer sustained severe chest and body injuries and died at 6:10 p.m. at a local hospital.

## Applicable Rules

4020. Employes must be particularly careful during cold weather to avoid falls caused by slipping on snow or ice or other hazards, . . . .

(Union Pacific Railroad Rules Governing Duties and Deportment of Employes, Safety Instructions and Use of Radio)

## Analysis

The post-accident investigation revealed that when the equipment operator received a proceed signal from the laborer, he began to move the speed swing forward and approached a slight incline to cross over track No. 1. At that time, the laborer was obscured from the operator's sight. As a result, the operator did not see the laborer slip and fall directly in front of the moving speed swing.

## Cause

The employee failed to stand clear of moving equipment. A contributing factor was the snow packed surface which did not provide a secure footing in the work area.

REPORT: 13

RAILROAD: Southern Pacific Transportation Company

LOCATION: Harlingen, Texas

DATE: February 16, 1980

## The Accident

A 34-year-old brakeman was fatally injured on February 16, 1980 at about 12:20 p.m. in the interchange yard at Harlingen, Texas. Employed by the Southern Pacific Transportation Company (SP), the brakeman had 8 months of service.

## Background

The accident occurred near the east end of interchange track No. 1, which extends from the SP main line to the Missouri Pacific Railroad Company's (MOPAC) train yard in Harlingen. There is an additional track on the interchange, designated as track No. 2. The tracks are located adjacent to and south of the SP main-line track, north of the MOPAC yard, and within yard limits.

Tracks No. 1 and No. 2 are parallel and contain a maximum curvature of 11 degrees. The gradient is level. The south rail of each track is equipped with a hinged block, double-throw derail located near the clearance point at the east end of the tracks.

The switching crew consisted of a conductor, two brakemen, and an engineer. After the required off-duty period, the crew had been on duty for 4 hours and 50 minutes before the accident. The brakeman was assigned to the rear position on the crew.

The employee was last examined on and passed the SP safety and operating rules on the first day of his employment, June 8, 1979. His last physical examination was administered and passed on May 7, 1979.

## Circumstances of the Accident

Before the accident, track No. 1 was clear of cars. Track No. 2 contained two blocks of three and six boxcars separated by 150 feet. The east end of the six-car block was standing about 10 feet west of the derail on track No. 2.

Before the accident, a yard movement of four boxcars coupled to the front of the locomotive was moved eastward on track No. 1. The conductor remained near the switch at the west end of the interchange tracks. The engineer was operating the locomotive with the front brakeman riding on the right front platform steps. When last seen, the rear brakeman was riding the sill step on the right front end of the fourth car from the locomotive, directing the movement by two-way radio communication with the engineer. The visibility of the engineer and front brakeman was limited to about two car lengths ahead of the locomotive because of the track curvature and the boxcars standing on the adjacent track No. 2. Approaching the east end of track No. 1 at about 3 mph, the engineer noticed the top portion of the second car from the east end wobble violently. He simultaneously received a stop communication, via radio, from the rear brakeman. The movement was stopped immediately. The wheels of the fourth car struck the derail and derailed to the right. Marks on the right side of the car indicated that it had collided with the left front corner of the first car standing near the clearance point on track No. 2. The lead truck of the third car was also derailed.

The rear brakeman was found between the rails of track No. 2, 6 feet east of the east end of the first car. He received severe chest and head injuries and was pronounced dead at the scene by the coroner.

## Applicable Rules

P. . . . . . . . .

When riding on side of car employes must look in the direction of movement for impaired clearances, equipment or material fouling track.

. . . . . . . . .

(Southern Pacific Transportation Company Rules and Regulations of the Transportation Department)

## Analysis

A post-accident investigation revealed that there were no unusual track or footing conditions in the accident area. There were no equipment defects. The rear brakeman had maintained frequent two-way radio contact with the engineer during the movement. The two-way portable radio used by the rear brakeman was found near his body. The radio was still turned on and functioning when tested after the accident. There were no witnesses to the accident.

## Cause

The accident was caused by the employee's failure to take appropriate action and stop the yard movement prior to reaching the derail.

REPORT: 14

RAILROAD: Baltimore and Ohio Railroad Company

LOCATION: West Mosgrove, Pennsylvania

DATE: February 20, 1980

## The Accident

A 60-year-old carman was fatally injured on February 20, 1980 at about 3:10 p.m. in West Mosgrove, Pennsylvania. Employed by the Baltimore and Ohio Railroad Company (BO), the carman had 34 years of service.

## Background

At West Mosgrove, the front track and back track are located east of and parallel to the main line. The tracks have a slight descending grade from north to south.

The south end of the back track connects to the Pittsburg and Shawmut Railroad. The front track ends at the north end, beyond the switches connecting it to the back track and the main line.

The employee was examined on the carrier's Book of Rules on March 17, 1970. He attended safety meetings on January 15 and 29, 1980.

## Circumstances of the Accident

At about 4:15 a.m., BO Extra 4191 derailed two cars while setting out cars at West Mosgrove. The north car was loaded with liquid fertilizer, and a hopper car contained about 9 tons of frozen coal. The hopper car turned over on its side towards the east. Two employees of the Penn Erection Company arrived at the site to rerail the cars. A car foreman, trainmaster, and carman were assisting in the rerailing operation.

A crane was used to lift the trucks from the overturned hopper car onto the rails of the front track. The car was placed upright, and the north end was on a 4' x 6' timber on the north truck. The south end of the car was placed in the approximate center of the track.

The crane then picked up the south end of the hopper car with a single hook attached by the carman to the top-end chord near the center of the car. As the car was being lowered into position on the center pin, the hook slipped off the chord and the unbalanced car overturned. The carman was standing on the east side of the car near the south end. The carman was pinned between the south chord of the car and the west rail of the back track. He was pronounced dead at the scene by the Armstrong County Coroner.

## Applicable Rules

387. Attaching hook of crane or hoist block directly to object being moved is prohibited. Chains, slings, or other lifting accessories must be used. Employees must see that attachment to the load is secure and properly made to prevent slipping, and crane operators must, when possible, observe that this is done.

392. Employees must place themselves in a position so they cannot be caught between an obstruction and the load being handled or the load-handling equipment. Be alert for unexpected swing or shifting of loads.

(Chessie System Safety Rules)

## Analysis

After setting the north end of the car on the timber, the single crane hook was attached directly to the chord on the south end of the car.

With the north end of the car resting on the timber and 18,900 pounds of frozen coal unbalancing the car to the east, a spreader hitch was required to safely raise the south end of the car.

## Cause

The accident was caused by the carman's failure to stand clear of a suspended hopper car.

A contributing factor was the lifting of the hopper car without the use of a spreader hitch to evenly suspend the car.

REPORT: 15

RAILROAD: Southern Pacific Transportation Company

LOCATION: Lobe Junction, Texas

DATE: February 21, 1980

## The Accident

A 37-year-old machine operator was fatally injured on February 21, 1980 at about 8:15 a.m. at Lobe Junction, Texas. Employed by the Southern Pacific Transportation Company, the machine operator had 11 years of service.

## Background

The Southern Pacific Transportation Company's single main track crosses three roads which use the same rights-of-way for a short distance, approximately 10 miles north of Beaumont, Texas. The highway is divided by a 40-foot median with two southbound lanes and two northbound lanes. Automobile speed is limited to 55 mph. There is a crossover for highway traffic connecting the southbound and northbound lanes. The railroad intersects the crossover and the four lanes of the highway.

The employee was last examined on the Southern Pacific Transportation Company's Rules and Regulations of the Maintenance-of-Way on May 2, 1974. His last physical examination was administered on July 1, 1968.

## Circumstances of the Accident

A maintenance crew was cleaning right-of-way ditches near the accident area. The previous night, a gradall machine had been left in the median between the southbound and northbound lanes of the roads near the crossover. Two machine operators were preparing to move the gradall machine from the median area to the work site. They planned to back the machine onto the inside, southbound lane of the highway, move forward to the crossover, turn left through the crossover, and proceed to the job site on the northbound lanes of the highway. One operator was moving the machine and the other operator was behind the machine on the left shoulder of the inside southbound lane to signal the machine operator when it was safe to back onto the highway.

After receiving a backup signal from the operator on the ground, the machine operator backed onto the edge of the inside lane about 2 or 3 feet. The operator on the ground signaled him to stop. A pickup truck was approaching in the inside lane; when it moved to the outside lane, the machine operator received a signal to resume movement. At that time the machine operator saw an automobile pull out from behind the pickup truck and he stopped the movement. The automobile was moving at a high rate of speed. The automobile operator attempted to reduce the speed, swerved from the inside lane onto the shoulder, and struck the employee. The impact hurled the employee approximately 40 feet through the air and into a crossbuck pole. The operator suffered head injuries and multiple fractures. ~~He died at 10:05 a.m.~~ The machine operator was pronounced dead at a local hospital.

### Applicable Rules

Not applicable.

### Analysis

The automobile involved in the accident was being operated at a high rate of speed, changing lanes continuously in order to pass moving traffic. After striking the employee, the automobile collided with the gradall machine, the right front wheel of the automobile, and the left rear wheel of the gradall machine. The automobile stopped in the highway median.

### Cause

The automobile operator failed to control the speed and movement of the vehicle; the motorist struck and fatally injured the railroad employee.

REPORT: 16

RAILROAD: Norfolk and Western Railway Company

LOCATION: Decatur, Illinois

DATE: February 21, 1980

## The Accident

A 39-year-old roadway machine repairman was fatally injured on February 21, 1980 at about 11:00 a.m. in Decatur, Illinois. Employed by the Norfolk and Western Railway Company, the repairman had 8 years of service, 11 days of which were in the position of roadway machine repairman.

## Background

The accident occurred on the South Nebraska track located on the north end of Decatur Yard. The track is level in the area.

At about 10:30 a.m., the crane operator brought a crane (NW 30772) into the South Nebraska track, where a flat car (NKP 2086) was located. Two roadway machine repairmen were to make some changes in the boom.

The carrier's records did not indicate the type of training received or the safety meetings attended by the roadway machine repairman.

## Circumstances of the Accident

The crane was placed about 4 feet from the flat car, and the boom was lowered to the floor of the flat car for support. The tip section of the boom was removed and pulled back about 1 foot.

On the south side of the boom the repairman was attempting to remove the pins from the second section of the boom, and the other repairman was removing the pins on the north side. The repairman on the south side removed the top pin but was unable to remove the cotter key from the bottom pin. The crane operator was instructed to raise the boom to allow access to the bottom pin and cotter key.

The boom was raised about 4 feet above the floor of the flat car. An 8" x 17" x 8' bridge timber was placed lengthwise under the end of the boom at a 45° angle. When the repairman started to remove the bottom pin, the other two men turned their backs to the repairman to get some chains and cable. When they turned to the repairman, the boom had fallen on him. He died instantly.

## Applicable Rules

1553. Employees must place themselves in a position so they cannot be caught between an obstruction and the load being handled or the load-handling equipment.

1555. Crane or derrick boom must be lowered to car or ground for lubrication or repair. Boom must be secured to prevent movement when not in use.

(Norfolk and Western Railway Company Safety Rules)

## Analysis

An inspection of equipment subsequent to the accident, revealed no mechanical defects. When the bottom pin holding the boom was removed, it allowed the two boom sections nearest the crane to fall on the repairman.

The repairman was inexperienced on his current job and had no specific training or instructions on the book of rules or company procedures for that job.

## Cause

The employee failed to place himself in a position clear of the crane boom.

BEST DOCUMENT AVAILABLE

REPORT: 17

RAILROAD: Union Pacific Railroad

LOCATION: Meridian, Idaho

DATE: March 14, 1980

## The Accident

A 59-year-old brakeman was fatally injured on March 14, 1980 at about 6:20 a.m. in Meridian, Idaho. Employed by the Union Pacific Railroad, the brakeman had 38 years of service.

## Background

At Meridian, a siding parallels the main track on the south, and a storage track designated as "Beet Track" parallels the main track on the north. All tracks are tangent with a slight descending grade eastward. A block-type derail, actuated by a high switch stand displaying a fixed circular target, is located on the north rail of the Beet Track about 240 feet west of the east switch. The accident occurred near the east end of the Beet Track at the derail.

The employee was a member of the local freight crew, consisting of an engineer, a conductor, and two brakemen. The crew went on duty at 5:00 a.m. at Nampa, Idaho, after having completed the required off-duty period.

The employee had served in yard switching service and had only recently entered road freight service as a brakeman.

The employee was last examined on the Union Pacific Operating Rules on April 30, 1970. His last physical examination was administered on February 28, 1977.

## Circumstances of the Accident

The local freight train departed Nampa with a locomotive and a caboose. The initial switching was to be performed at Meridian. The caboose was left on the main track adjacent to the Beet Track derail. The crew coupled the locomotive to a boxcar at the east end of the siding track and returned to the main track. The brakeman lined the switch at the east end of the Beet Track for movement onto that track. He signaled the engineer to back up and push the car ahead of the locomotive. He boarded the lead end of the car on the south side, between the Beet Track and the main track.

The movement reached a speed of about 12 mph when the brakeman gave a stop signal. At the same time, the wheels struck the derail on the north rail causing the box car to derail to the south. The employee was fatally injured when the leading end of the car in which he was riding struck the standing caboose, crushing him between the two cars.

## Applicable Rules

104(H). Employes in train, engine and yard service must keep in mind the location of derails at all points and must be on the lookout for portable derails on repair tracks and industry tracks. Engines or cars must not be permitted to pass over derails in derailing position.

All derails must be kept locked in derailing position when not being used, regardless of whether there are cars on the track they protect, and derails equipped with switch stands must be kept locked in non-derailing position while movements are being made over them.

A purple light on a derail indicates the derail is in derailing position.

105. Except where movement is governed by signal indication, trains or engines using any track other than a main track must move prepared to stop short of a train, engine or obstruction or a switch not properly lined.

(Union Pacific Railroad Company Operating Rules -- Eastern and South-Central Districts and Idaho Division)

## Analysis

It was the rear brakeman's responsibility to insure that all switches and derails were properly positioned for the movement onto the Beet Track. He had made several trips on the same line and had previously been involved in station switching at Meridian. He apparently overlooked or failed to properly position the derail before the locomotive and car entered the track.

## Cause

The accident was caused by the employee's failure to position the derail properly and control the speed of the switching movement.

REPORT: 18

RAILROAD: Atchison, Topeka and Santa Fe Railway Company

LOCATION: Lubbock, Texas

DATE: March 22, 1980

## The Accident

A 20-year-old yard helper was fatally injured on March 22, 1980 at 12:30 a.m. in the upper yard at Lubbock, Texas. Employed by the Atchison, Topeka and Santa Fe Railway Company, the yard helper had 6 months of service.

## Background

The upper yard is located north of the double main tracks. It is a flat switching and classification yard with 12 tracks. In the accident area the yard is well illuminated by a mercury vapor lamp, and the footing was in good condition.

The accident occurred on the west switching lead track. The yard helper was a member of a yard switching crew consisting of an engineer, an engine foreman, and two yard helpers. The crew had been on duty for 1 hour and 30 minutes.

From September 20, 1979, through October 7, 1979, the employee received classroom training on the carrier's operating rules and safety rules, and on-the-job training with switching crews in the Amarillo yard. His last physical examination was administered on September 20, 1979.

## Circumstances of the Accident

The crew had switched several tracks before the accident. The locomotive and nine cars were on the lead track and a box car was on the west end of track No. 107. The next switching move was to switch the box car on track No. 107 and kick the car into track No. 108. The yard helper was on the west end of a tank car, the ninth car in a 10-car cut, and was crossing over to the opposite side of the car to uncouple the tenth car. This was necessary because of a bent uncoupling lever on the tenth car.

The pin puller was on the east end of the tank car. He crossed over and made the cut on the tenth car, which was kicked onto track No. 108. The yard helper was found by the engine foreman lying face up across the south rail of the lead track, between switch No. 106 and switch No. 107. His torso and his right toes were severed. He was pronounced dead at the accident scene.

## Applicable Rules

General Rules

G. The use of alcoholic beverages, intoxicants, or narcotics by employes subject to duty, or their possession or use while on duty or on Company property, is prohibited.

Employes must not report for duty under the influence of any drug, intoxicant, medication or other substance (including those prescribed by a doctor or dentist) that will in any way adversely affect their alertness, coordination, reaction, response or safety. No such drug, intoxicant, medication or other substance may be used by employes on duty or while on Company property.

K. Employes must not be careless of the safety of themselves and others. They must remain alert and attentive and plan their work to avoid injury.

(Atchison, Topeka and Santa Fe Railway Company Rules Operating Department)

## Analysis

Three wheels of two cars (NATX 20403) and (ATSF 275532) rolled over the employee on the westward movement out of track No. 107 onto the lead. On the eastward movement, the wheels rolled back over him before the movement stopped. There were no witnesses to the accident; the exact circumstances could not be determined.

The coroner reported that according to the Department of Public Safety Motor Vehicle Standards, the intoxication level is 100 milligrams per deciliter of blood. The pathologist's report showed the yard helper's blood alcohol content to be positive at 116 milligrams per deciliter, and an unidentified drug was present.

## Cause

The employee failed to maintain a secure handhold when crossing over to the other side of the moving tank car and fell across the rail between two freight cars.

Contributing factors were the inoperative uncoupling lever on the tenth car and the employee's high blood alcohol content.

REPORT: 19

RAILROAD: Illinois Central Gulf Railroad

LOCATION: Stonefort, Illinois

DATE: March 25, 1980

## The Accident

A 25-year-old machine operator was fatally injured on March 25, 1980 at about 10:25 a.m., approximately one-half mile south of Stonefort, Illinois. Employed by the Illinois Central Gulf Railroad, the operator had 4 years of service. The weather was clear.

## Background

The accident occurred in the west lane of U.S. Highway 45. The highway is straight and level, and is surfaced with bituminous material. There is an unobstructed view for approximately one-half mile preceding the point of the accident.

## Circumstances of the Accident

A tractor-trailer was moving south on Highway 45 in the west lane at approximately 50 mph. The backhoe was also moving south in the same lane at an undetermined speed. Its headlights were on, and yellow flashing lights were displayed on the rear.

The tractor-trailer started to pass the backhoe, struck it, and forced it off the road about 18 feet onto the open ground on the right side. There were skid marks made by the tractor-trailer, 52 feet long, 3 feet beyond the highway centerline, before it ran off the pavement and overturned just ahead of the backhoe.

## Applicable Rules

GENERAL RULES

J. Vehicles and Equipment.

Employes whose duties include operating vehicles or equipment are required to exercise precaution to prevent accidents or damage . . . .

(Illinois Central Gulf Railroad Company Rules for the Maintenance of Way and Structures)

## Analysis

The two vehicles were headed south in the same lane on a straight and level highway with unobstructed view, and there was no oncoming traffic. The vehicles were not exceeding the posted speed limit.

An Illinois State Trooper interviewed the driver of the tractor-trailer just after the accident. The driver stated that he had seen the backhoe and had started to go around it because he thought the backhoe was pulling off the highway. He gave no explanation for not completing this move. He also stated that he knew of no other traffic in the other lane.

The trooper stated that the shoulder of the highway was soft and he had found no tread marks to indicate that the backhoe had been off the highway prior to the accident.

## Cause

The accident was caused by the driver of the tractor-trailer failing to control his vehicle.

REPORT: 20

RAILROAD: Denver and Rio Grande Western Railroad Company

LOCATION: Lynn, Utah

DATE: April 9, 1980

## The Accident

A 22-year-old communication lineman was fatally injured on April 9, 1980 at about 10:00 a.m. in Lynn, Utah. Employed by the Denver and Rio Grande Western Railroad Company (DRGW), the lineman had 1 year of service.

## Background

The communication lineman was part of a five-man crew performing maintenance work on the DRGW's communication pole line in a remote canyon area near Lynn. The railroad's communication line in the area is on wooden poles, approximately 20 feet high.

The electric power transmission pole line is located off the railroad's right-of-way and parallels the DRGW communication line with a separation of approximately 300 feet. The power company's line carries 46,000 volts per conductor on wooden poles approximately 45 feet high with one crossarm supporting two conductors and a third conductor mounted on top of the pole. A grounding wire runs from near the top of the pole to the ground.

## Circumstances of the Accident

At approximately 10:00 a.m. on the day of the accident, the communication lineman left railroad property and climbed a power company's transmission line pole. The lineman received a severe electrical shock when he came in contact with one of the power line conductors and a ground wire mounted on the pole. He was removed from the pole by other linemen and taken by ambulance to the Carbon County Hospital, where he died a short time later.

## Applicable Rules

Not Applicable.

## Analysis

The insulators on the power company's line were old and considered valuable to collectors. Before the accident, the value of these insulators had been discussed among crew members. According to their statements, the lineman may have been attempting to remove one of the insulators.

The State toxicologist reported that his test for plant material showed "Positive for Marijuana" and he stated that the lineman, "may have been smoking marijuana."

## Cause

The accident was caused by the lineman ascending a power pole not on carrier property and coming in contact with a high-voltage electrical conductor and ground wire. The state medical examiner cited the cause of death as electrocution.

A contributing factor may have been the possible influence of marijuana.

REPORT: 21

RAILROAD: Baltimore and Ohio Railroad Company

LOCATION: North Point, Pennsylvania

DATE: May 14, 1980

## The Accident

A 58-year-old lineman was fatally injured on May 14, 1980 at about 6:30 p.m. at North Point, near Punxsutawney, Pennsylvania. Employed by the Baltimore and Ohio Railroad Company (BO), the lineman had 6 1/2 years of service. The weather was clear and warm.

## Background

The accident occurred on the main line, first sub-division, of the BO's Pennsylvania Division. In the accident area a pole line is located on the west side of the single main track. The pole is the first pole on a hillside cut, ascending northward for approximately 34 feet.

The carrier issues a book of safety rules to its employees. The employee was an experienced lineman, having worked for the Western Union Company for 31 years prior to his service with the carrier.

The lineman's last physical examination was on January 29, 1979. He was last instructed on the carrier's safety rules and the characteristics of the territory on August 14, 1975.

## Circumstances of the Accident

The accident occurred 11 miles south of Punxsutawney, Pennsylvania. The pole line carries communication circuits between Punxsutawney and Butler, Pennsylvania. On the day of the accident, the lineman was in the process of locating a malfunction of the communication lines when he noticed a tree in the line at Mile Post 238+18 poles. The lineman contacted the yardmaster at Riker, via radio, at 4:00 p.m. and informed him that he had found a tree in the line, and it would take several hours to remove it and make the appropriate repairs.

At approximately 6:00 p.m., the wire chief became concerned that neither he nor the yardmaster had heard from the lineman. After failing to contact the lineman by radio, the wire chief contacted the assistant track supervisor and requeste that he investigate. The assistant track supervisor arrived at the scene of the accident at approximately 8:34 p.m. He saw the lineman's truck parked on the west side of the track, just south of the scene of the accident. He attempted to attract the lineman's attention by calling his name; there was no reply. At this time, a southbound train was passing the scene of the accident and was in emergency braking.

The assistant track supervisor used the radio in the lineman's truck and asked the engineer why he was stopping the train. The engineer replied that he had struck a telephone pole laying on the tracks just north of his location. The train continued southward until it stopped with the caboose in the vicinity of the accident scene.

The conductor and assistant track supervisor walked northward until they came to the broken telephone pole laying on the west side of the track. They continued northward where they found the lineman laying on the east side of the track structure. He was laying on his back, clear of the ballast line 7 feet from the east rail.

When the lineman was found, his body belt was off and it and his handline were on the ground. The top strap of his left climber was unfastened. The right climber was securely fastened to his leg.

The conductor and assistant track supervisor examined the lineman for signs of life and requested that an ambulance be dispatched to the scene. The ambulance arrived at approximately 9:15 p.m. The lineman was taken to the Punxsutawney Hospital. The coroner placed the time of death at 6:30 p.m. The cause of death was cited as massive internal hemorrhaging.

## Applicable Rules

### Electrical and Line Work

324. Every pole, . . . including bases must be examined before attempting to climb it to insure its being sound enough to support the weight to be placed upon or against it . . . .

(Chessie System Safety Rules)

The carrier's joint circular letter dated January 1, 1958 stated:

"Instructions for Employes Engaged in the Maintenance, Construction or Renewal of Electrical Transmission, Distribution or Control Wires or Cables:"

Paragraph 10 - Observe condition of wood pole . . . to see that it is safe before climbing. Pay particular attention to the following points. (e) Pole on a straight line not carrying a messenger or more than 10 signal or communication wires.

Paragraph 11 - If in doubt as to whether wood pole is safe to climb, test it by one of the following methods:

(a) With pike pole 8 or more feet long applied to pole 8 to 12 feet from ground at right angles to wires, rock or sway pole sufficiently to determine its condition.

(b) Remove earth from around pole to at least 6 inches below normal surface of ground and with a heavy screw driver or similar tool prod the decayed wood from around this portion of pole to determine that sufficient sound wood remains. In addition, sound pole to a height of 4 feet with hammer to detect presence of hollow heart.

## Analysis

The carrier has pike poles available to be used when needed. It was not determined if the lineman had them on his truck the day of the accident.

Since the lineman was working alone, there were no witnesses to the accident.

## Cause

The telephone pole broke at the ground level causing the lineman to fall. The lineman apparently did not check the condition of the pole to see if it was safe to climb.

REPORT: 22

RAILROAD: Illinois Central Gulf Railroad

LOCATION: Paducah, Kentucky

DATE: May 28, 1980

## The Accident

A 24-year-old bridgeman was fatally injured, and two other employees injured, on May 28, 1980 at about 2:30 p.m. in Paducah, Kentucky. Employed by the Illinois Central Gulf Railroad, the bridgeman had 1 year and 9 months of service.

## Background

A bridge and building crew dug a trench 8 feet, 9 inches deep, approximately 32 feet long, 9 feet wide at the top, and 6 feet wide at the bottom. A 10-inch gravity flow drainage pipe was to be installed in the trench among and under the tracks in the locomotive repair shop area.

The carrier had issued a safety rule book to the employees. The workers were not required to attend safety rule meetings.

## Circumstances of the Accident

On May 28, 1980, the construction inspector and foreman determined that the trench dug the previous day was secure enough to enter. At approximately 2:30 p.m., two employees were completing installation of the drainage pipe when the north side of the trench caved in, burying them. Other members of the crew came to their aid. One crew member was freed but the other suffocated. The third injury occurred when an employee broke a bone in his right hand while trying to free the man.

## Applicable Rules

Manholes, Wells, Trenches, Sewers, Pits, and Other Excavations

. . . . . . . . .

67. The sides of excavations must be shored whenever there is possibility of a cave-in with the shoring properly braced. When excavation is near tracks, the side must be shored.

. . . . . . . . .

69. Particular attention must be given to shoring where vehicles pass close to an excavation.

. . . . . . .

(Safety Rules, Illinois Central Gulf Railroad)

## Analysis

A post-accident investigation disclosed no unusual conditions in this area. The trench was dug between the engine track and sand track, a distance of about 40 feet. The tracks remained in service and were used occasionally. Idling locomotives on the engine track and their movement on the tracks adjacent to the trench may have contributed to the unstable condition of the trench walls.

## Cause

The accident was caused by a failure to properly shore and brace the sides of the trench.

REPORT: 23

RAILROAD: New Orleans Public Belt Railroad

LOCATION: Jefferson Parish, Louisiana

DATE: May 30, 1980

## The Accident

A 28-year-old bridgeman helper was fatally injured on May 30, 1980 at about 1:45 p.m. in Jefferson Parish, Louisiana. Employed by the New Orleans Public Belt Railroad, the employee had 8 years and 7 months of service.

## Background

The Mississippi River railroad bridge is approximately 5 miles long and 80 feet above the point where it passes over the Jefferson Highway. The heavy timbers used as crossties are secured to steel girders with "hook" bolts. These hook bolts must be inserted from beneath the bridge deck. A two-point suspension scaffold, 2 feet wide, 24 feet long, is suspended by wire rope from the bridge handrail. A 12-foot ladder is hooked over this handrail, extending down to the scaffold. A safety belt with a lanyard is also attached to the handrail. The bridgeman helper stands on the scaffold and with a 16-pound hammer drives hook bolts into a timber. A flagman was positioned on the highway below.

A safety meeting was conducted on the identification, personal knowledge, and use of safety belts on March 1, 1972.

## Circumstances of the Accident

The bridgeman helper was a member of a six-man crew replacing bridge crossties. Another bridgeman helper had previously used the safety belt and left it on the scaffold with the safety belt lanyard free and secured to the bridge handrail. The employee went over the bridge handrail to drive the "hook" bolts through the timber. Before beginning work on the scaffold, he fell to the highway below. The flagman saw the bridgeman helper fall. The other crew members on the bridge were unaware of the fall until the flagman notified them.

## Applicable Rules

General Order No. 220

. . . . . . .

1. Employees will exercise care to avoid injury to themselves or others. Compliance with the rules is expected and required. Carelessness or indifference in the performance of duties will not be condoned. Employees who are careless of the safety of themselves or others, insubordinate, dishonest, immoral, quarrelsome, or otherwise vicious, will not be retained in the service.

. . . . . . .

(Public Belt Railroad Commission - March 31, 1971)

## Analysis

It is common practice to climb over the handrail to the work place before securing the free end of the safety belt lanyard.

The bridgeman helper had been reprimanded for working on a scaffold without a safety belt on a previous occasion.

There were no witnesses to determine if he fell from the ladder or the scaffold.

## Cause

The accident was caused by the employee's failure to wear a safety belt when he climbed over the bridge handrail and descended the ladder to the scaffold.

REPORT: 24

RAILROAD: Texas & Northern Railway Company

LOCATION: Lone Star, Texas

DATE: June 2, 1980

## The Accident

A 54-year-old car repairman was fatally injured on June 2, 1980 at about 2:25 p.m. in Lone Star, Texas. Employed by the Texas and Northern Railway Company, the repairman had 2 years and 5 months of service. The weather was partly cloudy, and the temperature was 94°F.

## Background

The accident occurred in the vicinity of the car repair shop. Three tracks extend through the building and converge northward beginning 188 feet from the west end of the car shop. The track is used as a holding track for repaired cars. When the holding track is full, repaired cars are switched to the yard tracks.

The usual work pattern is to place five "bad order" cars on each of the three tracks in the car repair shop. When the cars are repaired, a front-end forklift pushes the cars from the car repair shop to the start of the holding track. Since this track is on a 1 percent descending grade, for about 700 feet two or three car repairmen ride the cars and operate the hand brakes to control the speed and bring the cars to a stop on the holding track.

## Circumstances of the Accident

On the day of the accident, five empty cars were repaired on the south track: a flat car (TNW 3264) with bulkhead ends, a hopper car (TN 559), a hopper car (TN 644), a gondola car (TN 1036), and a flat car (TN 2119) with pipe racks. After repairs were completed, a car repairman and a car repairman-helper were assigned to ride a five-car cut and couple them to the standing cars on the holding track. The car repairman boarded TN 2119, the last car of the cut. The five cars were coupled and shoved by a forklift loader until the final car was at the west end of the car repair shed. From this point, the cars moved by gravity. A second car repairman-helper thought the cars were moving too fast to be controlled by the two men on the cars. He boarded TN 559 to assist in braking the cars. The car repairman-helper on TN 1036 became aware of the speed and aware that the cars would not stop short of impact with the standing cars. He jumped into TN 1036 and continued to apply the hand brakes. The car repairman-helper on TN 559 could also see that the cars would not stop. He jumped to the ground, lost his balance, and rolled away from the moving cars. The car repairman was not aware that the cars would not stop. The coupling impact threw him forward against TN 1036, and he fell to the ground between the cars. The car ran over the repairman below the rib cage, severing the spine and inflicting massive internal injuries. He was pronounced dead at the scene.

## Applicable Rules

Not applicable.

## Analysis

Post-accident investigation revealed no unusual track or ballast conditions that could have contributed to the accident. The 1-percent descending grade is an excessive decline for cars rolling under hand brake control. The employee was riding on the "B" end of the car which has nothing to use as a brace or stop to prevent the employee from being thrown forward upon impact. The coupling speed of the rolling cars was estimated at about 15 mph. The employee's view of the standing cars was completely blocked by the bulkhead of car TN 1036.

## Cause

The accident was caused by the employee's failure to maintain control of rolling equipment. A contributing factor was the unsafe practice of allowing employees to ride cars down a 1-percent grade without providing appropriate safeguards.

REPORT: 25

RAILROAD: Missouri Pacific Railroad Company

LOCATION: Sedalia, Missouri

DATE: June 6, 1980

## The Accident

A 24-year-old assistant signalman was fatally injured on June 6, 1980 at about 3:30 p.m. in Sedalia, Missouri. Employed by the Missouri Pacific Railroad Company (MP), the assistant signalman had 3 years of service. The weather was partly cloudy; the temperature was 91°F.

## Background

Sedalia had been devastated by a tornado on May 9, 1980, and the MP signal crew was making repairs to the signal system. The repairs involved restoring the railroad-owned signal pole line which parallels the railroad main track, approximately 35 feet to the south. A power line owned by the Missouri Public Service Company parallels the carrier's main track, approximately 51 feet to the south. The two pole lines are divided by a 5-foot wire fence located 11 feet south of the railroad pole line and 5 feet north of the public service pole line.

The carrier does not require assistant signalmen to be examined on the operating or safety rules while they are participating in a training program. New employees are issued operating and safety rule books.

The signal foreman was operating a telescopic boom on a stake truck at the time of the accident. He had been employed in the signal department for 32 years and had been examined on the rules in August 1977. He last attended a monthly safety meeting in January 1980.

## Circumstances of the Accident

The signal crew consisted of a signal foreman, two signalmen, and the assistant signalman. At 7:30 a.m. on the day of the accident, they went on duty after having completed the required off-duty period. They parked their repair truck under the Missouri Public Service Company's power line on the Sedalia Water Treatment Plant's property to replace a damaged MP pole. This was the only way to reach the pole since debris was blocking the railroad right-of-way.

After setting the new pole, the signal foreman instructed the assistant signalman to get a chain saw from the truck cab. The assistant signalman proceeded to the truck and opened the cab door to get the chain saw. At the same time, a signalman on the pole released the sling to allow the signal foreman to winch the cable and turn the boom to reposition it in the cradle. As the boom was being turned, it came into contact with the Missouri Public Service Company's 7,200-volt power line. The assistant signalman was touching the truck when the boom came into contact with the power line. He was electrocuted. The signal foreman received a shock and minor burns.

## Applicable Rules

### General Rules

. . . . . . .

L. Constant presence of mind to insure safety to themselves and others is the primary duty of all employes and they must exercise care to avoid injury to themselves and others . . . .

They must inform themselves as to the location of structures or obstructions where clearances are close.

### Basic Rules

1. Rules cannot be written to cover every possible situation that may arise in connection with each and every individual task connected with your work; therefore, certain definite responsibilities rest upon you namely:

(a) Protection of yourself

(b) Protection of your fellow employes

(c) Protection of the public.

. . . . . . .

(Uniform Code of Safety Rules)

S18. . . . When derricks, hoists, rail laying machines, or other equipment is being used near any wires, every possible precaution must be taken to avoid any part of equipment or material being handled, coming in contact with these wires.

(Missouri Pacific Railroad Company Rules and Regulations for the Maintenance-of-Way and Structures)

## Analysis

The post-accident investigation indicated that the high voltage line should have been visible to the signal foreman. Placing the truck at that location placed crew members in a hazardous position.

## Cause

The accident was caused by the failure of the signal foreman to maintain a careful lookout to assure that the boom did not contact the high-voltage overhead wires.

REPORT: 26

RAILROAD: Illinois Central Gulf Railroad

LOCATION: Jackson, Tennessee

DATE: June 8, 1980

## The Accident

A 34-year-old yard brakeman was fatally injured on June 8, 1980 at about 5:00 p.m. in the East Yard of Iselin Yard in Jackson, Tennessee. Employed by the Illinois Central Gulf Railroad (ICG), the brakeman had 10 years of service.

## Background

The East Yard consists of six classification tracks extending northward from the south main track. The tracks are numbered 11 through 16 from the west. The accident occurred on track No. 16, a tangent track with a 0.14-percent grade descending northward.

The yard brakeman had been issued a copy of the carrier's operating and safety rules and was last examined on the rules on June 22, 1978.

## Circumstances of the Accident

The yard crew consisted of an engineer, a yard conductor, and two yard brakemen. They went on duty at 2:59 p.m. after having completed the required off-duty period. The crew was assigned to switching operations in the East Yard. Shortly before the accident, the crew coupled the locomotive to 27 cars on track No. 12 and hauled them southward for classification to various tracks in the East Yard. During the switching operations, the engineer was in the locomotive cab, the front yard brakeman was operating uncoupling levers south of the main track switch, and the yard conductor was aligning switches on the lead. They were all located on the east side of the cut of cars. The yard brakeman was opening knuckles and coupling cars on the tracks at various locations north of the conductor's position. In the switching process, three cars were kicked northward onto track No. 16. The north car was a covered hopper car (ICG 728077). The three cars struck a cut of cars standing on the track, failed to couple, and rolled southward leaving an opening of about 166 feet between the two cuts of cars. Two cars were kicked onto track No. 12.

The yard brakeman was last seen walking northward between tracks No. 15 and No. 16 toward the opening between the two cuts of cars standing on track No. 16. Three cars were cut off in motion onto track No. 16 and coupled to the three south cars on that track at an estimated speed of about 5 mph.

The crew was instructed to shove the remainder of the cut of cars onto track No. 12 to clear an inbound train entering track No. 14 from the north. After the train cleared, the conductor tried several times by radio to contact the yard brakeman without success. The yard brakeman was found lying east of track No. 16 about 920 feet north of the south main track switch. He sustained multiple injuries including a fractured skull and cervical fractures. According to the coroner's report, he died instantly.

## Applicable Rules

Coupling and Uncoupling Cars and Locomotives

. . . . . . .

235. Make certain that equipment is not going to move and check for approaching locomotives, cars or other equipment before going between standing locomotives or cars.

(Illinois Central Gulf Railroad Safety Rules)

## Analysis

There was no witness to the accident. Since the yard brakeman was last seen walking toward the opening between those cuts of cars standing on track No. 16, he was apparently going to open the knuckle at the north end of ICG 728077. The location of the skin and hair fragments on the end sill, and the fact that his body was not run over, indicate that he was standing outside the east rail of track No. 16, operating the coupler with his left hand, and opening the knuckle with his right hand. Impact of the cut of three cars caused the end sill of ICG 728077 to strike him on the right temple near the hair line and throw his body eastward. He died from severe fractures to the skull and cervix.

Inspection of all cars standing on track No. 16 disclosed no defects which would have caused or contributed to the accident. Inspection of ICG 728077 disclosed fragments of skin and hair on the end sill at the north end near the east side.

## Cause

The accident was caused by failure of the yard brakeman to make certain that equipment was not going to move and to check for moving cars before going between standing cars.

REPORT: 27

RAILROAD: Chicago and North Western Transportation Company

LOCATION: Des Moines, Iowa

DATE: June 10, 1980

## The Accident

A 24-year-old yard foreman was fatally injured on June 10, 1980 at about 5:45 a.m. in Bell Avenue Yard in Des Moines, Iowa. Employed by the Chicago and North Western Transportation Company (CNW), the yard foreman had 1 year and 10 months of service.

## Background

Bell Avenue Yard is a flat switching yard consisting of 18 parallel tangent tracks entending east to west with a slight descending grade westward. The switching operation in Bell Avenue Yard is performed by two yard engines, one at each end of the yard. A yardmaster issues work instructions to yard crews by switch list and radio.

The carrier requires employees to be examined on operating rules biennially. The employee, however, had never been examined on the carrier's operating or safety rules. The employee received 32 hours of classroom training and 92 hours of on-the-job training at the time of employment. New employees are issued copies of the carrier's operating and safety rule books.

## Circumstances of the Accident

The west-end yard crew consisted of a yard foreman, a yard helper, and an engineer. They went on duty at 11:59 p.m. on June 9, 1980, after having completed the required off-duty period. Yard switching was performed using locomotive unit CNW 1572. Shortly before the accident, the yardmaster verbally instructed the yard foreman to move four cars on track No. 14 to track No. 8. The yard foreman was informed that the east-end yard crew would be switching cars into the east end of track No. 14. The east-end yard crew was not informed that the west-end yard engine would be moving cars from track No. 14.

The west-end yard crew moved onto the west end of track No. 14 and coupled locomotive CNW 1572 to the two west cars. The yard foreman was standing at the east end of the second car (GATX 43341), and the yard helper was at the east end of the first car on the south side of track No. 14. The yard foreman gave the engineer a "back up" hand signal to move the locomotive westward. As the locomotive and two cars slowly moved westward, four free-rolling cars, cut off in motion by the east-end yard crew, struck the two remaining cars standing on the east end of track No. 14. Those six cars, the first of which was MKT 11433, rolled westward a short distance and struck the first car (GATX (GATX 43341) being moved westward by locomotive CNW 1572 but did not couple. The locomotive and its two cars stopped after the contact. The six cars rolled backwards about 20 feet from GATX 43341 and stopped.

The yard foreman gave the engineer a signal to move westward. The locomotive and two cars slowly moved westward, and the yard helper saw the yard foreman move between GATX 43341 and MKT 11433. The six east cars moved westward and again struck GATX 43341. The engineer stopped the movement when he felt the contact of the six cars. The yard foreman was found lying on the east drawbar of GATX 43341, separated from the drawbar of MKT 11433 by about 18 inches.

## Applicable Rules

Coupling or Uncoupling Engines and Cars and Work Incident Thereto

128. Adjusting drawbars of moving cars or engines for any purpose is prohibited.

130. No employe shall go between cars on any track for any purpose, including coupling air hoses, or inspecting or adjusting angle cocks, drawbars or knuckles, until he has determined that no further movement will be made on said track while he is between cars.

(Chicago and North Western Transportation Company General Regulations and Safety Rules)

## Analysis

The post-accident investigation of the equipment failed to reveal any defects that would have contributed to the accident. There were no unusual track or ground conditions in the accident area.

The yard foreman was aware that the east-end yard crew was to switch cars into track No. 14. The yard foreman's working experience included previous shifts at Bell Avenue Yard, and he was familiar with the work and physical characteristics of the yard. The yard foreman was last seen giving the engineer a hand signal to back up. He then moved between GATX 43341 and MKT 11433, apparently to align the coupler on GATX 43341. MKT 11433 and five other cars moved westward and crushed the yard foreman between the couplers.

## Cause

The accident was caused by the failure of the yard foreman to stand clear of moving equipment.

REPORT: 28

RAILROAD: Chesapeake and Ohio Railway Company

LOCATION: Huntington, West Virginia

DATE: June 10, 1980

## The Accident

A 31-year-old brakeman was fatally injured on June 10, 1980 at about 12:45 p.m. in Huntington, West Virginia. Employed by the Chesapeake and Ohio Railway Company, the brakeman had 5 years of service. The weather was clear; the temperature was 75°F.

## Background

The accident occurred in the 16th Street Yard at Huntington. The yard consists of two freight main tracks, four yard tracks, and two passenger main tracks. A train made a westward movement on the freight main to 8th Street and then made an eastward movement through the crossovers to track No. 1. The train proceeded to track No. 2 and then to track No. 4.

On the day of the accident, the crew consisted of a conductor, two brakemen, and an engineer. They went on duty at Hinton, West Virginia, at 4:45 a.m.

The brakeman last attended a rules class on August 29, 1979.

## Circumstances of the Accident

At 12:23 p.m., Extra 3904 West arrived at the 16th Street Yard and the crew was instructed by the yardmaster to set off eight cars on the west end of track No. 3. The cars were cut from the train, and pulled west to the crossovers at 8th Street, and pushed back in an eastward direction through the crossovers to track No. 2, which was protected by a blue flag. According to the engineer's statement, it was at this point that the train was stopped and the brakeman walked the route to be taken and lined the switches. The brakeman radioed the engineer and instructed him to "come on back." While pushing in an eastward direction through the crossover from track No. 2 to track No. 4, the east end of the lead car struck the blue flag and then struck the west end of the west car standing on track No. 2, derailing both cars.

A witness stated that the brakeman was thrown from the car, struck, and knocked to the ground. He was pinned between the car and the north rail of yard track No. 4.

## Applicable Rules

BLUE SIGNAL (BLUE FLAG) PROTECTION

26. . . . . . . . .

Blue Signal Display

Blue Signals displayed . . . signify that workmen are on, under, or between rolling equipment. When so displayed:

. . . . . . .

-- Rolling equipment must not pass a blue signal.

105. Unless governed by block signal displaying an aspect more favorable than RESTRICTING or by special instructions, trains using other than main track must proceed prepared to stop within one-half the range of vision.

(Chessie System Operating Rules)

## Analysis

There was insufficient clearance between the standing cars and the cars being pushed through the crossover. This caused the cars to derail. This resulted in the death of the brakeman who was riding on the side of a box car.

The carman who placed the blue flag stated that he lined and locked the switch away from track No. 2. He also stated that he did not think that the cars on track No. 2 were fouling the crossover. He placed the blue flag at the frog to stop movement through the switch. He did not give a reason for not placing the blue flag at the switch point.

## Cause

The accident resulted from shoving cars into a track that was fouled by a car projecting from an adjacent track.

A contributing factor was an improperly displayed blue flag. The switch was locked and lined away from track No. 2, but the west car on that track fouled the shoving movement.

REPORT: 29

RAILROAD: Atchison, Topeka and Santa Fe Railway Company

LOCATION: Gainesville, Texas

DATE: June 13, 1980

## The Accident

A 55-year-old carman was fatally injured on June 13, 1980 at about 10:30 a.m. in Gainesville, Texas. Employed by the Atchison, Topeka & Santa Fe Railway Company (ATSF), the employee had 30 years of service. The weather was clear and warm.

## Background

The repair facility consists of two stub-end tracks in a wooden building. The accident occurred on the east end of track No. 5 near the south end of the building.

The employee had a physical examination on November 1, 1971. Weekly safety meetings are held for Mechanical Department employees. On July 28, 1978, the employee acknowledged receipt of the carrier's Standard Safety Rules for Santa Fe Employees.

## Circumstances of the Accident

The carman was engaged in replacing a defective draft gear on ATSF 310309, a loaded air-slide covered hopper. The car was equipped with an M-17 National "E" draft gear with a Y-40 yoke.

The operation consisted of removing the coupler and yoke, and the remainder of the component. The draft gear was chained to two hooks anchored in a concrete block cast between the tracks. The car was jacked up to remove the draft gear. A supporting plate was positioned beneath the draft gear by using a forklift truck.

The first jacking operation of the car did not free the draft gear. The chains were tightened, and the car was jacked up a second time. The carman used a 25-pound lining bar to assist in disengaging the draft gear. During the operation, the carman was standing between the rails with his left side toward the car, holding the lining bar above the coupler carrier iron. Eleven and one-half inches of the squared end of the lining bar were above and inboard of the coupler carrier iron. The carman was leaning forward facing the work area with his head over the lining bar, when he was suddenly struck by the handle portion of the bar on the right temple and died instantly.

## Applicable Rules

215. Before strain is placed on load, employes must move to a safe distance . . . .

228. Employes working . . . in the immediate vicinity of lifting operations must keep clear . . . Be alert for unexpected swing of load.

(Atchison, Topeka and Santa Fe Railway Company Safety Rules for Santa Fe Employes)

## Analysis

When the draft gear was freed and dropped to the supporting plate, it struck the inboard portion of the lining bar, forcing it downward. The coupler carrier iron served as a fulcrum and pivoted the handle portion of the lining bar suddenly upward which struck the employee on the right temple under the area protected by his hard hat.

## Cause

The employee was fatally injured when he was struck by a lining bar when it was suddenly forced upward.

REPORT: 30

RAILROAD: Baltimore and Ohio Railroad Company

LOCATION: Sleepy Creek, West Virginia

DATE: June 27, 1980

## The Accident

A 58-year-old flagman was fatally injured on June 27, 1980 at about 3:20 p.m. in Sleepy Creek, West Virginia. Employed by the Baltimore and Ohio Railroad Company, the employee had 36 years of service. The weather was clear and warm.

## Background

In the accident area there are two main tracks which are 27 feet apart, and a gravel roadway between the tracks. The tracks extend east and west and are tangent for approximately one-quarter mile in either direction. The north track is designated as No. 1 main and the south track as No. 2 main. Sleepy Creek is 4 miles east of Hancock, West Virginia.

The employee last attended an operating rules class on February 19, 1980. His last complete physical examination was administered on March 28, 1980.

## Circumstances of the Accident

The accident occurred between the two main tracks. The flagman was a member of a five-man crew on a work train which consisted of a locomotive unit, a crane car, an idler car, 12 ballast cars, and a caboose. The train was standing on track No. 1, headed west. A maintenance truck was parked between the two tracks about 150 feet east of the work train's caboose headed east. Before the accident, three track maintenance employees entered the truck cab. The flagman approached the truck and asked the foreman for a wedge to fit a hammer. After receiving the wedge, the flagman started walking west along the center of track No. 1 toward the caboose. The foreman started the truck as the locomotive of a westbound train passed on track No. 2. The truck moved westward in reverse at a slow speed for about 210 feet. The foreman stopped the truck when he noticed the flagman lying in the road east of the truck. The employee sustained a severe head injury when he was run over by the truck.

## Applicable Rules

811. Employes must, as far as practicable, observe entire length of passing trains for defects . . . .

(Chessie System Operating Rules)

GENERAL NOTICE

H. It is the duty of every employee to use personal judgment and exercise care to avoid injury to themselves or others. No job is so urgent that sufficient time cannot be allowed to perform all work safely.

44. Employees on or about tracks must always be alert to keep out of danger, exercising care to avoid injury to themselves and others. Nothing in these rules is to be construed as relieving any employee from performing his full duty in this respect.

46. Employees on or about any tracks, whether in the open, in shops, on bridges, or in tunnels, must move to a place of safety upon the approach of rolling equipment on the track where they are working or on an adjacent track. Employees must always position themselves at a safe distance from moving equipment, and be alert for falling or protruding equipment.

(Chessie System Safety Rules)

## Analysis

Materials loaded in the rear of the truck obstructed vision through the rear cab window. The truck was equipped with side mirrors measuring 6 inches wide and 16 inches high which the driver used while backing. There were no witnesses to the accident, and the exact movements of the flagman before to the accident could not be determined.

The carrier's description of the accident was that the flagman went to the truck, returned to the caboose, and left the caboose just before the accident. The crane operator indicated that he saw the flagman on the caboose while the train was moving. The track foreman's statement indicated that the flagman went to the truck after the train stopped. The accident apparently occurred as he returned from the truck to the caboose.

It could not be determined what caused the employee to be in the path of the motor vehicle at the time it was being moved. A westbound freight train was passing through the area at the time of the accident. It is possible that the movement of the truck was not heard by the flagman because of the noise of the passing train.

## Cause

The accident was caused by the employee's failure to place himself in a position of safety away from the path of a moving vehicle.

REPORT: 31

RAILROAD: Chesapeake and Ohio Railway Company

LOCATION: Richmond, Virginia

DATE: July 7, 1980

## The Accident

A 48-year-old conductor was fatally injured on July 7, 1980 at about 2:15 p.m. near the Sandco Station in Richmond, Virginia. Employed by the Chesapeake and Ohio Railway Company, the conductor had 30 years of service.

## Background

The accident occurred on the Piedmont Subdivision of the Virginia Division near Sandco Station in Richmond. The accident area consists of a single track over which trains operate by a traffic control system. The grade ascends 1.2 percent westward. The accident occurred in a wooded area.

The conductor worked his first 25 years as a clerk and the remaining 5 years in train service. He was promoted to freight conductor 2 months before the accident. He attended an operating rules class on June 17, 1980. His last safety instruction was on May 20, 1980, and he passed a physical examination administered on February 28, 1979.

## Circumstances of the Accident

The road freight crew consisted of an engineer, a conductor, and two brakemen. They went on duty at 9:45 a.m. on July 7, 1980, in Richmond, Virginia, after having completed the required off-duty period. The crew was assigned to operate train No. 795 (Extra 3764 West) from Richmond to Charlottesville, Virginia. The train consisted of two locomotive units (No. 3764 and No. 8256), 40 cars, and a caboose. It departed Fulton Yard in Richmond at 1:30 p.m. The train stalled on a 1.2-percent ascending grade near Sandco Station, which is 4.4 miles west of Fulton Yard.

The conductor uncoupled 20 cars from the train and instructed the engineer to move ahead and over the ascending grade. After the cars were set out, the conductor aligned the main track switch for the eastward return movement to pick up the 20 cars. The engineer was at the controls at the west end of unit No. 3764. He stated that the conductor boarded the east end of the lead locomotive unit (No. 8256) and disappeared from his view. En route he had radio conversation with the conductor approaching the Dill Road crossing. He again attempted to contact the conductor on the radio approaching Sandco Station and received no response. He thought that the conductor had alighted from the opposite side of the locomotive at Dill Road or that the conductor's radio became inoperative.

The head brakeman coupled the locomotive units to the rear 20 cars and the train proceeded westward. Approximately 600 feet east of Dill Road, the engineer saw the conductor sitting on the ground between the rails. The movement was stopped and the conductor was found to be badly injured and incoherent. He was taken to the Medical College of Virginia Hospital by a rescue squad where he died at 4:41 p.m. Cause of death was acute chest injuries.

## Applicable Rules

ON LOCOMOTIVES AND CARS

82. When on cabooses, cars, or locomotives, employees must exercise care to avoid injury from slack action or from sudden start or stop . . . .

87. Riding on cars, or steps and platforms of locomotives or cabooses without a secure hold is prohibited . . . .

(Chessie System Safety Rules)

## Analysis

The post-accident inspection of the locomotive units disclosed a brush mark on the leading pilot plate of unit No. 8256, 12 inches from the bottom of the pilot plate and 8 inches to the left measured from the center. Brush marks were also found on traction motor No. 4, the fuel tank of unit No. 8256, and on the rear truck bolster of unit No. 3764. The walkway safety chain on the lead platform of unit No. 8256, where the conductor was apparently located, measured 24 inches above the platform. The safety chain was found to be secure and in the proper position.

There were no witnesses to the accident and the exact circumstances could not be determined.

## Cause

The employee apparently fell off the locomotive and onto the roadbed between the rails, and was run over by two locomotive units.

REPORT: 32

RAILROAD: Soo Line Railroad Company

LOCATION: Neenah, Wisconsin

DATE: July 8, 1980

## The Accident

A 31-year-old switchman helper was fatally injured on July 8, 1980 at about 5:05 p.m. in the classification yard in Neenah, Wisconsin. Employed by the Soo Line Railroad Company, the switchman had 7 years of service.

## Background

At Neenah, a system of classification tracks, connected at each end and numbered one through nine from the south, is located north and parallel to a siding and single main line track. Track No. 7 is 1,925 feet long, and the track gradient is practically level.

The switchman helper last passed an examination on the Consolidated Code of Operating Rules on September 19, 1979. His last physical examination was administered on November 2, 1972.

## Circumstances of the Accident

On the day of the accident, the Neenah yard crew consisted of a switch foreman, two switchmen helpers, an engineer, and a fireman. They reported for duty at 3:15 p.m. after completing the required off-duty period. The crew was at the east end of the yard, engaged in assembling a block of 10 cars for industrial placement. Seven of the cars were coupled and placed on the east lead. The east car was clear of the east switch of track No. 5, and the west car extended about 2 1/2 car-lengths onto track No. 7.

At the time of the accident, the switch foreman and the switchman helper were on the lead track at the east end of the east car. The engineer and fireman were in the cab of the switch engine which was facing west. The other switchman helper was riding on the front of the engine. The engine was pulling three cars from the east end of track No. 5 to couple them to the seven cars standing on the lead, and then leave the yard.

During the switching operation, freight train No. 943 arrived at Neenah. The train was composed of two locomotive units and 96 freight cars. It was stopped on the main track at 4:55 p.m. to set out 29 cars which were located six cars behind the head end. While the train was approaching Neenah, the yardmaster instructed the crew by radio to place the cars on track No. 7. At Neenah the front trainman, who was equipped with a portable radio, walked to the west end of the track, determined that it was clear, lined the switches, and returned to the train. The 35 head cars were uncoupled, pulled over the west crossover switch, and the reverse movement began with the front trainman riding on the lead car. Opposite a yard shanty, he alighted from the moving train to obtain information concerning the cars that were to be picked up. He was on the west lead track while the reverse movement continued eastward onto track No. 7.

The length of the 29 cars was 1,816 feet and 6 inches, which exceeded the usable length of track No. 7. The moving cars struck the seven cars standing at the east end of the track No. 7. The impact moved the seven cars eastward on the lead track and caused a "raking" collision between the seventh car and two of the three cars being pulled out of track No. 5 by the switch engine.

At the moment of impact, the switch foreman and the switchman helper had opened the coupler of the seventh car and were standing close to the east end of the car. Both employees were struck by the car. The switch foreman was thrown to the side and sustained a minor shoulder injury. The switchman helper was thrown to the ground and sustained fatal injuries when run over by the car. Crew members estimated the impact speed to be about 4 mph.

## Applicable Rules

TRAIN AND YARD SERVICE

808(C). . . . Before shoving cars it must be known there is sufficient room to hold the cars.

808(D). When cars are being shoved and conditions require, a member of the crew must take a conspicuous position on the leading car.

808(F). Where engines may be working at both ends of a track there must be a proper understanding between the crews involved.

(The Consolidated Code of Operating Rules)

## Analysis

The switch foreman had reached an understanding with the crew that track No. 7 was to remain clear so that a train might use the track to set out cars. Because of congested tracks at the east end of the yard, the switch foreman elected to briefly use the east end of track No. 7 in switching the industry cars. It was estimated by crew members that there was a period of about 5 minutes when the track was partially occupied by the cars. This followed the front brakeman's observation that the track was clear. The front brakeman assumed that the yardmaster's instruction to place the cars on track No. 7 was assurance that the track capacity was sufficient to hold the cars. There was no communication between the crew members of train No. 943 and the switch engine crew.

## Cause

Failure of the employee to stand clear of moving equipment. Contributing factors were the failure of the front brakeman on train No. 943 to ride the leading car while shoving cars onto track No. 7 and the failure of the switch foreman to keep track No. 7 clear.

REPORT: 33

RAILROAD: Soo Line Railroad Company

LOCATION: Glenwood, Minnesota

DATE: July 9, 1980

## The Accident

A 59-year-old switchman was fatally injured on July 9, 1980 at about 1:15 p.m. in Glenwood, Minnesota. Employed by the Soo Line Railroad Company, the switchman had 35 years of service.

## Background

At Glenwood the West Yard is comprised of 10 classification tracks numbered 1 through 10, lying east of the single track main line. Track No. 3 West is 6,598 feet long and is the easternmost track. Track No. 2 is on the west, and a narrow pathway and undeveloped land are to the east. The track gradient, with slight variations, is descending to the south.

On the day of the accident, the Glenwood yard crew consisted of a switch foreman, two switchman helpers, an engineer, and a fireman. They reported for duty at 7:00 a.m. after completing the required off-duty period.

The switchman was last examined and passed a test on the Consolidated Code of Operating Rules on May 15, 1978. The Soo Line has a program of safety meetings, but attendance records are not maintained. It could not be determined when the employee last attended a safety meeting. The carrier does not require periodic physical examinations for switchman employees.

## Circumstances of the Accident

Shortly before the accident, the yard crew was at the north end of the West Yard assembling a westbound train on track No. 3. The switchman was last observed on the lead end of a 55-car cut being shoved onto track No. 3. The cars were to be coupled to cars standing near the south end of the track. The switchman was on the left-side ladder of a gondola car (UP 229920). The car had fixed ends, a hand brake platform, and a horizontal grab iron extending across the lead end of the car. Via portable radio, the switchman directed the engineer to shove the 55 cars toward the coupling, initially advising about 40 car lengths to the coupling. He successively advised 20 cars, 15 cars, 10 cars, 5 cars, and 3 cars as the coupling distances decreased. The engineer and fireman were in their respective positions in the locomotive, the second switchman helper was riding on the front of the locomotive, and the switch foreman was checking a list of cars on another track.

There was no further radio transmission after the switchman advised of the 3-car-length distance. The engineer controlled the movement speed with the automatic air brakes and the engine brake. At the time of the last radio transmission, the speed was estimated to be about 2 or 3 mph. Shortly after the 3-car-length transmission, the engineer attempted to contact the switchman on the radio but received no reply. The engineer continued to apply the engine brake. The crew members felt a slight impact when the coupling occurred. The engine was uncoupled from the cars and moved southward onto the main track while crew members maintained a lookout for the switchman. He was found lying over the east rail of track No. 3, about 107 feet from the coupling; his body was severed.

## Applicable Rules

TRAIN AND YARD SERVICE

. . . . . . .

808. Employes performing switching must do so efficiently and in a manner which will avoid personal injury, damage to contents of cars, equipment, structures or other property.

(The Consolidated Code of Operating Rules)

## Analysis

There were no witnesses to the accident, and the final actions of the switchman could not be determined.

Had the operations continued as planned, the switchman would have completed the coupling, then walked the length of the 55 cars to the north end of the yard.

The leading wheel on the right (east) side of the first car disclosed initial contact with the switchman, indicating that at some point in the movement the switchman crossed over from the "B" left-side ladder to a position near the "B" right corner, using the hand brake platform and handhold. Close inspection of the air brake hose on the "B" end of the car disclosed a scrape mark which may have been caused by contact with the switchman's boots. An inspection of the car and track disclosed no defects which would have contributed to the accident.

## Cause

The switchman apparently slipped and fell in front of the moving equipment while attempting to move from the end platform to the "B" right sill step.

REPORT: 34

RAILROAD: Southern Railway Company

LOCATION: Springfield, Virginia

DATE: July 16, 1980

## The Accident

A 24-year-old flagman was fatally injured on July 16, 1980 at about 6:40 a.m. at the Vulcan Materials plant in Springfield, Virginia. Employed by Southern Railway Company, the flagman had 1 year of service.

## Background

The Vulcan Materials plant is located in an industrial area served by a spur track which diverges from the Southern Railway's main line. The track extends from east to west and crosses Industrial Drive just east of the plant. Immediately inside the plant, track No. 4 diverges to the north and storage track No. 1 diverges to the south. Just west of track No. 4, there is a car dump pit on the center track. West of the pit, track No. 3 diverges to the north, and the center track continues as track No. 2. At this point, the three tracks curve slightly to the left (south) with track No. 1 converging into track No. 2. About 900 feet west of the car dumper, tracks No. 2 and No. 3 end at a dirt backstop which is 10 feet high. The track grade approaching the plant varies from level to about 1 percent ascending for a short distance. From the car dumper west to the end of the track, the grade is nearly level.

The employee last attended an operating rules class on February 2, 1980. His last physical examination was administered on November 16, 1978.

## Circumstances of the Accident

The accident occurred at the dirt backstop on the south side of track No. 3. The movement consisted of four diesel locomotive units shoving 50 hopper cars loaded with stone and controlled by radio communications from the flagman riding the lead car. The engineer and conductor were located in the control compartment of the locomotive unit. The head brakeman applied seven hand brakes while riding to the east end of track No. 3, where he remained to uncouple the cars to be left on that track. The flagman continued to ride the movement and was in constant radio contact with the engineer. Approaching the stopping point, the engineer made a 4-pound brake application. The speed was gradually reduced until a normal stop was made. Instructions from the flagman were received, and there was no indication of any unusual situation.

When the engine stopped, the engineer noticed that the train brakes went into an emergency application. The brakeman standing at the east end of track No. 3 also noticed the emergency application as he waited for the flagman to come into sight from the end of the train. When the flagman did not appear, the brakeman walked to the end of the track where he found the flagman between the dirt backstop and the "AL" corner of a hopper car. The angle cock on the west end of this car was open. The flagman sustained severe internal chest injuries.

## Applicable Rules

### General Rules

M. . . . . . . .

Employees must not do any work in a manner that will jeopardize their own safety, or that of their fellow employees . . . .

### Signals And Their Use

7. Employees whose duties may require them to give signals must provide themselves with the proper appliances, including portable radio when available, keep them in good order and ready for immediate use.

(Southern Railway System Operating Rules)

## Analysis

The employee opened the angle cock which applied the brakes in emergency. He was unable to prevent being trapped between the end of the lead car and the backstop. It could not be determined why the flagman thought it was necessary to open the angle cock, when this action required that he place himself in a dangerous position. He could have safely accomplished the emergency brake application by continuing radio communication with the engineer.

## Cause

The trainman placed himself in the path of moving equipment and was fatally injured when caught between a freight car and backstop.

REPORT: 35

RAILROAD: Louisville and Nashville Railroad

LOCATION: Licking, Kentucky

DATE: July 23, 1980

## The Accident

A 48-year-old crane engineer was fatally injured on July 23, 1980 at about 9:15 a.m. near Licking, Kentucky. Employed by the Louisville and Nashville Railroad, the crane engineer had 29 years of service.

## Background

In the accident area there are two main-line tracks extending north and south, and placed on a cinder fill approximately 15 feet high. The point of accident is immediately south of a bridge spanning the South Fork of the Licking River. The grade in the accident area is practically level.

The employee last attended a safety meeting on July 21, 1980. His last physical examination was administered and passed on February 7, 1977.

## Circumstances of the Accident

At 7:00 a.m. a mechanical work crew resumed a rerailing operation necessitated by a derailment which had occurred on July 17, 1980. A 250-ton wrecking crane was uncoupled from the consist of a work train on the northbound main track and moved a short distance southward. A pad was placed on the west side of the crane between the northbound and southbound main tracks. The southwest outrigger of the crane was positioned on this pad. Two car trucks were then set in place on the southbound main track to be used under LN 182974, which was lying on the west side of the track structure. The hopper car contained about six tons of coal and was placed upright and across both main tracks. The hitch was removed from the car. The southwest outrigger was returned to the stored position, and the crane moved a few feet southward closer to the car. Two cables were suspended from the auxiliary fall block of the crane boom.

Portable radios were being used by the observer watching for wheel lift on the east side of the crane, the crane engineer in the control compartment, and the wreck foreman who was located on the west side of the crane between the crane and the car to be lifted. The crane engineer was instructed to lift the car about 2 feet above the track structure. During this movement, the observer watched the wheels of the crane from the east side, advising the foreman there was no sign of wheel lift.

Shortly after the lift was stopped and before the dumping process started, the crane overturned to the west. The rear portion of the crane struck a car truck on the southbound main track, causing the crane engineer's control compartment to strike the west rail of the southbound main track at a slight angle. The engineer was trapped inside the crane control compartment and crushed. An examination by the wreck crew foreman and emergency response personnel failed to detect any sign of life in the crane engineer. He was pronounced dead at the scene at approximately 5:30 p.m.

## Applicable Rules

POWER CRANES, HOISTS AND DERRICKS

. . . . . . .

335. . . . Never attempt to lift a load in excess of a crane's capacity.

357. When heavy loads are to be hoisted by cranes, outriggers must be properly blocked, . . . .

(Louisville and Nashville Railroad Company Operating Department Safety Rules)

## Analysis

The 250-ton crane has recommended weight loads which are calculated by boom radius, the number of outriggers being used, and in the free standing mode. In this case, the crane was being used in the free standing mode with a boom radius of about 40 feet over a suspended load estimated at 50,000 pounds. With the boom above the southwest corner of the crane base, the suspended load was 24,000 pounds over the recommended limits for the mode of operation. This created an imbalance which caused the crane to overturn and crush the crane engineer.

## Cause

The accident was caused by the failure of the wrecking crew to place outriggers on the crane while lifting a load in excess of the recommended weight limits.

REPORT: 36
RAILROAD: Burlington Northern
LOCATION: Baden, Minnesota
DATE: July 24, 1980

## The Accident

A 54-year-old communications lineman was fatally injured on July 24, 1980 at about 1:10 p.m. near Baden, Minnesota. Employed by Burlington Northern, the lineman had 31 years of service.

## Background

The accident occurred on the Ninth Subdivision of the Wisconsin Division on a single track line between Brookston and Gunn, Minnesota. Trains are operated by signal indications of a centralized traffic control system controlled by a dispatcher at Superior, Wisconsin. Baden is located at Mile Post 69.2 and Fermoy is at Mile Post 82.7. They are located 11.4 and 25.0 miles west of Brookston, respectively. The accident site was at Mile Post 76.7. Westward trains approaching the site operate on tangent track for approximately 2.5 miles on a gradient which varies from 0.5 ascending to 0.5 descending, and is practically level at the point of the accident. Trains consisting of empty hopper cars are restricted to a maximum speed of 45 mph.

The lineman was examined and passed a test on the maintenance-of-way rules in March 1979. He attended safety meetings in January and February 1980 and his last physical examination was administered on May 23, 1980.

## Circumstances of the Accident

The employee reported for duty at 8:00 a.m. on the day of the accident. He drove a highway vehicle to a rail-highway crossing near Mile Post 73.5. The crossing was used to place the motor car on the track before performing routine duties between Baden and Fermoy.

The employee was issued CTC track permit No. 226. This permit authorized the employee to occupy the main track from the west switch at Baden to the east switch at Fermoy from 11:40 a.m. until 1:01 p.m. The permit did not require that the employee report when he was clear of the main track.

Train No. Extra 2097 West was called at Superior at 10:00 a.m. on the day of the accident. The train consisted of four locomotive units, 140 empty ore hopper cars, and a caboose. The crew consisted of an engineer, a fireman, a conductor, and two brakemen. After receiving the prescribed air brake test, the train departed Superior at 10:35 a.m. The train passed Brookston, 18.7 miles east of the accident site, at 12:35 p.m.

As Extra 2097 West approached Mile Post 76.7, its speed was 43 mph according to speed recording tapes.

From an estimated distance of 1,000 feet the crew members on the locomotive observed an unidentified object on the track. Shortly thereafter, they determined that the object was a derailed track motor car with the front wheels and the right rear wheel between the rails. The engineer placed the train brakes into emergency and began sounding the horn. Approaching the motor car, the crew members observed the lineman lying between the rails about 15 feet east of the motor car. The employee's back was toward the approaching train and no body movement could be detected. The four locomotive units and six cars of the train passed over the employee before the train came to a stop. Crew members used the locomotive's radio to call for emergency help.

## Applicable Rules

CTC Track Permits

46. . . . Before the expiration of the time authorized, the movement must be clear of the main track or protection provided as the signals can be cleared and trains may enter the area immediately at the expiration of the time . . . .

(Burlington Northern Rules of the Maintenance-of-Way Department - Operating Department)

## Analysis

The track motor car was powered by a single cylinder gasoline engine. Although the motor car was badly damaged by the impact with the locomotive, a post-accident inspection disclosed that prior to impact, the ignition switch was in the "off" position, the hand brake applied, and the gasoline tank contained fuel. There was no evidence that the car had been accidentally derailed prior to impact with the train. Absence of scrape marks on the underside of the car indicated that the car had been partially set off the track.

Initial postmortem medical findings did not offer conclusive results concerning the possibility that the employee had become physically incapacitated or deceased prior to contact with the train. A second medical review was conducted in an effort to make a determination. Despite these comprehensive examinations, no conclusions could be drawn.

## Cause

The accident was caused by the employee's failure to clear the main track after the time authorized by his track permit.

REPORT: 37

RAILROAD: Consolidated Rail Corporation

LOCATION: Chicago, Illinois

DATE: July 26, 1980

## The Incident

A 58-year-old regional budget supervisor died on July 26, 1980 at about 12:15 p.m. in the Union Station at Chicago, Illinois. Employed by the Consolidated Rail Corporation, the supervisor had 32 years of service.

## Background

The Union Station building consists of eight floors. A fire started in an electrical cabinet in the basement, and smoke engulfed the entire building.

## Circumstances of the Incident

The regional budget supervisor and three other employees were working on the fifth floor of the building and were trapped because of smoke in the hallway. They went into room No. 515 and as the smoke became intense in the room, they decided to go out through the window and stand on the window ledge. All except the supervisor went out on the window ledge. One of the employees on the window ledge took the supervisor's hand through the window and tried to get him out on the window ledge. The employee was unable to continue holding on to the supervisor for fear of falling. The supervisor was later found on the floor, overcome by smoke.

## Applicable Rules

Not applicable.

## Analysis

The deceased employee was overcome by smoke. He was not willing, or was unable, to go out on the window ledge. There were no violations of the carrier's rules that led to his death.

## Cause

Smoke inhalation was cited by the Cook County Medical Examiner as the cause of death.

REPORT: 38

RAILROAD: Providence and Worcester Railroad Company

LOCATION: Norwich, Connecticut

DATE: July 28, 1980

## The Accident

A 20-year-old conductor was fatally injured on July 28, 1980 at about 11:15 p.m. in Norwich, Connecticut. Employed by the Providence and Worcester Railroad Company, the conductor had 1 year of service.

## Background

The Norwich Yard consists of four tangent tracks connected at both ends, and parallel to the main track on the east. A passing track, designated as the "Milk House" track, extends southward from the south end of track No. 1, adjacent and parallel to the main track on the east. Access to the passing track is provided by a hand-operated switch. When this switch is reversed it becomes the north switch of a crossover leading to the main track.

The accident occurred on the south crossover at the clearance point between the crossover and the main track. The conductor was a member of the crew of train XC-6 which consisted of an engineer, a conductor, and a trainman. The crew had been on duty for 2 hours and 45 minutes after having had the required off-duty period.

The employee was last examined and qualified on the carrier's operating and safety rules on March 18, 1980.

## Circumstances of the Accident

Train XC-6 arrived at Norwich and stopped on the main track. A block of nine cars was uncoupled and moved northward over the switch providing entrance to the north end of the yard tracks. The block of nine cars was moved southward and coupled to three cars standing on track No. 3. After the cars were coupled, the conductor instructed the engineer via radio that he was in position on the rear car and it was "OK to back up." The trainman remained near the north switch.

The movement continued about 600 feet when the engineer heard static and noise coming from the radio, and the movement came to a stop. He called the trainman via radio, and the trainman went to the south end of the yard. He found the conductor pinned between the end of the car on which he was riding and a car of the train standing on the main track.

## Applicable Rules

N3. Facing Point Switches

Trains and engines must approach all Facing Point Switches prepared to stop until switch is known to be properly lined.

(Providence and Worcester Railroad Company Rules for Conducting Transportation and Special Instructions)

## Analysis

The conductor intended to place the car on which he was riding on the track which diverged from the Milk House track, about 1,000 feet south, at the south end of the yard. He apparently failed to realize that the facing point switch, which provided access to the Milk House track, was reversed. The car passed through the crossover and collided with the cars standing on the main track.

## Cause

The accident was caused by the employee's failure to assure that the switch was properly lined.

REPORT: 39

RAILROAD: St. Louis-San Francisco Railway Company

LOCATION: Springfield, Missouri

DATE: August 6, 1980

## The Accident

A 40-year-old carman was fatally injured on August 6, 1980 at about 4:00 p.m. at the Associated Grocers Warehouse in Springfield, Missouri. Employed by the St. Louis-San Francisco Railway Company (SLSF), the carman had 18 years of service.

## Background

The Associated Grocers Warehouse is located on the east side of Springfield, about 10 miles from the SLSF Springfield Yard. A house track parallels the SLSF main track on the east, located inside the warehouse on the extreme west side of the building. The track is owned and maintained by Associated Grocers. Eleven cars can be placed for unloading inside the warehouse and are numbered spot No. 1 through spot No. 11, south to north. Switching service is provided by the SLSF. When required, freight car maintenance is provided by SLSF mechanical department employees. Cars placed on spots No. 10 and No. 11 have usually created unloading problems. The rail at this point is about 2 inches lower than at spots No. 1 through No. 9 and does not allow a plug door the necessary clearance to open at the surface of the unloading dock.

The carman regularly attended weekly safety meetings conducted by his supervisor. His last physical examination was administered on July 11, 1962.

## Circumstances of the Accident

On the day of the accident warehouse employees started to unload MP 786396 at about 7:30 a.m. They found that the right-side plug door could not be opened because of the rail height in relation to the unloading dock. To compensate, a fork lift was used to raise the door about 2 inches. A second fork lift then shoved the door open. During this operation, the top right crank arm was broken and rendered useless.

At 2:40 p.m. the dock supervisor notified an SLSF carman on the repair track about the problem with the door. He stated that they would probably need assistance in closing the door. In the interim three warehouse employees were successful in closing the door. They used two fork lifts to raise the door and a third fork lift to shove it closed. The top lift crank arm was broken, and the bottom left door rollers became disengaged. The door was secured in place and locked. When the cars were unloaded and released, warehouse employees placed a luminous green sticker, 3 inches high and 5 inches long directly above the door-unlocking mechanism. Crayoned on the sticker was the word "out." This indicated that the car was empty and available for movement. Since both top crank arms were broken, the employees added a second sticker with the words "bad order" crayoned on it. This sticker was placed directly below the "out" sticker.

The SLSF general car foreman was at the repair track when the 2:40 p.m. call was received from the warehouse dock supervisor. The general car foreman instructed the car foreman via radio to dispatch a carman to the warehouse to inspect and repair the defective door. The carman arrived at the warehouse at 3:45 p.m. He entered the warehouse through the east door near the shipping office. The carman passed within 16 feet of the plant supervisor. The plant supervisor called to the carman and notified him of the location of the car. He also informed the carman that the top two hinges of the door were broken. The carman nodded his head and continued toward the car. The carman was discovered beneath the door at 4:35 p.m. The time of death was placed at 4:00 p.m. Cause of death was a crushed head, chest, and back.

## Applicable Rules

36. It must be known that roller type doors and side doors on cars and locomotives are properly tracking or are securely hinged before operating them, and if not properly tracked or secured, take necessary action to safeguard their use.

(St. Louis-San Francisco Railway Company Rules, Regulations, Safety Rules and Instructions Governing Mechanical Department Employees)

## Analysis

The SLSF mechanical department is regularly called upon to assist in correcting door problems at the warehouse. A large percentage of the door problems concern the interior doors. This was apparently uppermost in the carman's mind. St. Louis-San Francisco mechanical department employees and warehouse employees were aware of the trouble spots No. 10 and No. 11 caused by rail height. In past practice, the car was jacked and blocks were placed between the top and bottom side bearings, which raised the car and provided the necessary clearance to open the door.

There were no witnesses to the accident. The post-accident inspection of the car and the plug doors revealed no defective conditions other than the two top crank arms. Both crank arms were broken, and the breaks were new breaks. This was substantiated by laboratory tests conducted by SLSF personnel.

There are no records to indicate that the SLSF or anyone contracted by Associated Grocers Warehouse has ever performed track inspection or maintenance on the track inside the warehouse.

## Cause

The employee apparently failed to inspect the door and operating appliances prior to opening the door, and was crushed to death.

A contributing factor was that the warehouse track was too low for box car door openings at spots No. 10 and No. 11 in the warehouse. As a result, warehouse men frequently broke upper crank arms on doors, by use of a fork lift machine to open doors.

REPORT: 40

RAILROAD: Baltimore and Ohio Railroad Company

LOCATION: Washington, District of Columbia

DATE: August 8, 1980

## The Accident

A 40-year-old flagman was fatally injured on August 8, 1980 at about 8:23 a.m. near the Michigan Avenue overpass bridge in northeast Washington, D.C. Employed by the Baltimore and Ohio Railroad Company, the flagman had approximately 11 years of service.

## Background

The Michigan Avenue overpass is located at Mile Post 3.2 on the Metropolitan Subdivision, 0.9 mile west (timetable direction) of QN Tower in Washington, D.C. As a result of construction work on this bridge, a flagman was required to be at this location. The flagman carried a portable radio and had worked at this location daily for some time prior to the accident.

A regular eastbound Amtrak train operates from Martinsburg, West Virginia, to Washington, D.C. On this day the train consisted of a diesel locomotive unit (No. 269) and eight passenger cars. It was about 2 minutes behind schedule at the time of the accident.

The railroad line in this vicinity is double track, extending east and west. The north track is track No. 1 and the south track is track No. 2. There is a metropolitan commuter rail line, which had been constructed between the carrier's tracks, with elevated passenger platforms located between Michigan Avenue and Monroe Street. Both sides of the rapid transit line are protected by chain link fence. The accident occurred east of the overpass on track No. 2, adjacent to the platform. Approaching the site from the west, track No. 2 is tangent for 3,000 feet to a point about 500 feet west of the overpass, where it begins a right 1° curve of 5,100 feet.

The flagman last attended an operating rules class on February 22, 1980, and a safety class on August 5, 1980. His last physical examination was administered on March 1, 1979.

## Circumstances of the Accident

As the train approached Michigan Avenue at a speed of 70 mph, a service application of the brakes was made by the engineer to reduce speed for a slow order at QN Tower. The engineer blew the horn as a precaution for the contractor employees on the bridge. About 500 feet west of the overpass, the engineer observed a person walking east with his back to the train and made an emergency application of the brakes and continued blowing the horn. A westbound freight train passed this location on track No. 1 at the same time. The flagman walking along the center of track No. 2 showed no sign of awareness of the approaching train. The train speed was about 66 mph when the flagman was struck at a point about 75 feet east of Michigan Avenue overpass. The train stopped about 1,200 feet east of the accident point. The flagman was pronounced dead on the accident site.

## Applicable Rules

45. Expect movement of equipment on any track, at any time, in either direction . . . .

46. Employees on or about any tracks, whether in the open, in shops, on bridges, or in tunnels, must move to a place of safety upon the approach of rolling equipment on the track where they are working . . . .

(Chessie System Safety Rules)

## Analysis

The flagman had been assigned to work at this location for a considerable length of time prior to the accident. The train involved was operated on a daily schedule, except Sunday. There was no reason for the flagman to be in the center of the main track. The horn was blown as a warning; however, there was no reaction by the flagman. Noise from the freight train on track No. 1 may have prevented the flagman from hearing the train on track No. 2.

## Cause

The accident was caused by the employee's failure to stand clear of the main track.

REPORT: 41

RAILROAD: Seaboard Coast Line Railroad

LOCATION: Mulberry, Florida

DATE: August 9, 1980

## The Accident

A 35-year-old flagman was fatally injured on August 9, 1980 at about 9:30 a.m. in the Prairie Dry Rock Yard in Mulberry, Florida. Employed by the Seaboard Coast Line Railroad, the flagman had 12 years of service.

## Background

Switching is performed from south to north in the Mulberry Yard. On the day of the accident, the crew performed switching operations in Mulberry Yard with the locomotive headed north. Due to the configuration of the tracks, the locomotive was headed south after arriving in the Prairie Dry Rock Yard. Switching was still performed from south to north, and all signals given in this instance would be given opposite from those given in Mulberry Yard.

Lead track No. 17 joins four tracks that are designated as No. 1 extension and Nos. 1, 2, and 3. These constitute the Prairie Dry Rock Yard. This is a connecting yard between the old Seaboard Yard (Mulberry Yard) and the old Atlantic Coast Line Yard, known as Prairie Yard in Mulberry, Florida.

The flagman was a member of the first New Whales switcher crew which consisted of a conductor, a brakeman, a flagman, and an engineer. The crew had been on duty for 1 1/2 hours after completing the required off-duty period.

The flagman was last examined and passed the tests on operating rules and safety instructions on October 16, 1979. His last physical examination was administered on March 8, 1968.

## Circumstances of the Accident

After the train arrived at Prairie Dry Rock Yard, switching was performed from the south on lead track No. 17. The accident occurred on track No. 2. During the switching operation, a gondola car was kicked into track No. 2 but failed to clear the adjacent track. A locomotive and 13 cars shoved the gondola car on track No. 2 in the clear. The brakeman raised the uncoupling lever either during or before the gondola car stopped. The cars separated with close clearance between the couplers after the movement stopped. The flagman rode the car into the clear and applied the hand brake. He then walked back to the south end of the gondola car and informed the brakeman that the gondola car was in the clear with the hand brake applied. The brakeman gave a radio signal for the engineer to back up. The flagman stepped between the couplers and was caught there as the cars coupled. He was pronounced dead at the scene of the accident.

## Applicable Rules

Coupling and Uncoupling

90. Employees must avoid going between or immediately ahead of standing or moving locomotives, cars, or other equipment, except at a safe distance.

91. Before going between standing locomotives or cars, employees must wait until slack is adjusted, and have proper understanding with other employees to guard against an unexpected move. They must know that there is no danger from approaching cars or locomotives . . . .

(Seaboard Coast Line Railroad Company Safety Rules for Train, Engine and Yard Employees)

## Analysis

A conversation between the two employees confirmed that the gondola car was in the clear. The flagman apparently expected that a back-up signal for movement toward the gondola car would not be necessary, or he expected a signal for the movement to go away from the gondola car. He started to cross through the close clearance of the couplers. The brakeman gave an incorrect radio signal to the engineer to back up. It is apparent that the brakeman failed to realize the direction the locomotive was facing in this yard and requested a wrong movement.

## Cause

The accident was caused by the flagman's attempt to cross between cars while the couplers were at close clearance and an improper signal given to the engineer by the brakeman.

REPORT: 42

RAILROAD: Missouri Pacific Railroad Company

LOCATION: Hot Springs, Arkansas

DATE: August 15, 1980

## The Accident

A 43-year-old brakeman was fatally injured on August 15, 1980 at about 10:30 a.m. on the Sutco industrial spur track switch near Hot Springs, Arkansas. Employed by the Missouri Pacific Railroad Company, the brakeman had a total of 24 years of service.

## Background

The accident occurred on the Sutco industrial spur track, located 124 feet north of the main track switch. The employee was a member of Train Work Extra 1985, a crew operating between Malvern and Hot Springs, a distance of about 23 miles.

On the day of the accident, the crew consisted of an engineer, a conductor, and two brakemen. They went on duty at 6:30 a.m., at Malvern, after the required off-duty period. The crew performed switching in the Malvern yard and assembled a train consisting of 2 locomotive units, 16 cars, and a caboose. The train departed northward toward Hot Springs at 8:50 a.m.

In the accident area the main track is tangent and practically level. The Sutco industrial spur track diverges northeastward from the main track for about 1,000 feet. A manually operated switch stand is located on the east side of the main track.

The employee was last instructed on the Uniform Code of Operating and Safety Rules on April 6, 1976.

## Circumstances of the Accident

After switching operations were performed en route, the train arrived at the Sutco industrial spur at 10:25 a.m. The train consisted of two locomotive units, two cars, a caboose, and one car. The crew's last switching assignment before returning to Malvern included picking up one car from the spur track and placing two cars for unloading. For the return trip, the crew planned to make a running drop of the three cars and a caboose onto the industrial spur track. On the main track, the locomotive units would travel south past the switch where the necessary switching would be performed. The southbound train would be assembled on the main track.

At the Sutco industrial spur, the train stopped on the main track south of the switch to allow ample distance for the drop. The engineer was seated at the controls on the east side of the lead locomotive unit. The brakeman mounted the northeast side ladder of the north car. The other brakeman was attending to the switch. The conductor mounted the southeast side ladder of the second-head car so that he would be in a position to cross over and apply the hand brake when the cars rolled clear of the main track.

Traveling northward, the train reached a speed of 12 mph. The brakeman was observed uncoupling the cars from the locomotive. As the locomotive units passed the switch, the other brakeman attempted to reverse the switch, diverting the free rolling cars onto the Sutco spur track. The brakeman was unable to secure the operating lever of the switch to the full reverse position before the leading wheels of the north car entered the switch. Because the switch points were partially open, the north truck assembly derailed. The south truck assembly was diverted to the spur track and derailed.

The conductor riding on the second car saw the north car derail and jumped to the ground. As the derailed car continued northward, the brakeman was seen getting off and running alongside grasping the side ladder.

Witnesses saw the brakeman lose his footing and fall in the path of the rear wheels of the derailed car. The rear wheels of the first car and the front wheels of the second car passed over him.

## Applicable Rules

103(a) Precautions in Switchin . . . .

(5) Kicking or dropping of cars will be permitted only when such movement can be made without danger to employes, . . . Know that the track is sufficiently clear, and when dropping cars, know switches and brakes are working properly . . . .

(Uniform Code of Operating Rules)

## Analysis

The brakeman attending the switch and the conductor both saw the north car derail. The brakeman stated that he was unable to secure the operating lever of the switch before the wheels of the car entered the switch and derailed.

It is not known whether the derailment caused the brakeman to fall from the car or prompted him to dismount voluntarily.

## Cause

The derailment caused the employee to fall into the path of moving freight cars, and he was run over by the wheels of two cars.

A contributing factor was the failure of the brakeman to properly secure the switch operating lever before the car entered the switch, thereby causing the cars to derail.

REPORT: 43

RAILROAD: Baltimore and Ohio Railroad Company

LOCATION: Watson, Indiana

DATE: August 18, 1980

## The Accident

A 32-year-old brakeman was fatally injured on August 18, 1980 at about 11:15 p.m. at Watson Yard in Watson, Indiana. Employed by the Baltimore and Ohio Railroad Company, the brakeman had 2 years of service. A heavy rain was falling.

## Background

The accident occurred on the main track at the east end of Watson Yard. Watson Yard is located on the Louisville Subdivision, consisting of one track to the south and two tracks to the north of the main track. Timetable direction is east and west. All tracks in the area have a slightly ascending grade from west to east, and ballast is evenly distributed.

The brakeman was a member of a freight crew operating from Louisville, Kentucky, to Cincinnati, Ohio. The crew consisted of an engineer, a conductor, and two brakeman. They went on duty at Louisville at 8:05 p.m., after completing the required off-duty period. The crew was assigned to Extra 4248 East, which consisted of 2 locomotive units, 50 cars, and a caboose.

The brakeman participated in a student brakeman program from December 18 to December 22, 1978. The program consisted of safe job procedure training in the field and assignments with experienced crews. His last physical examination was administered on April 8, 1980.

## Circumstances of the Accident

The train departed Louisville at about 8:45 p.m. and arrived at Watson about 9:10 p.m., where the train crew was to set out the 5 head cars and pick up 34 cars. They were delayed at Watson until about 10:45 p.m., waiting for a local switching crew to assemble the 34 cars.

After receiving permission to proceed, a brakeman walked to the location where he was to uncouple the cars, and waited until the train was moved forward. The switching operation consisted of placing cars on the "New Interchange Track," and picking up cars from the "Old Interchange Track," north of the main track. Radio communication was being used.

The engineer could see the brakeman's lantern when the train stopped to uncouple the cars, but he could not actually see the brakeman because of the darkness and inclement weather. The engineer then received verbal instructions from the brakeman to "give him some slack." The train was moved backwards about 10 feet, relieving the tension on the couplers. Verbal instructions were received from the brakeman to stop and move the train forward. The engineer did so, moving the lead portion of the train forward about 500 feet. He then stopped and attempted to contact the brakeman for further instructions.

Two crew members of the local switching crew were in a caboose and heard the engineer's unsuccessful attempts to contact the brakeman. They walked to the site and found the brakeman. He was lying between the rails of the main track, underneath the coupler of the sixth car. His head was against the south rail and his feet against the north rail. His radio and lantern were found beside him. The brakeman sustained severe injuries to his lower back, lower chest, and stomach. He was pronounced dead at the scene of the accident.

## Applicable Rules

On Or About Tracks

44. Employees on or about tracks must always be alert to keep out of danger, exercising care to avoid injury to themselves and others . . . .

45. Expect movement of equipment on any track, at any time, in either direction. Always look in both directions before crossing or getting close to any track. Crossing tracks immediately in front of moving trains, locomotives, or cars is prohibited. When crossing tracks near standing equipment, always allow sufficient room to avoid injury in case of sudden or unexpected movement.

(Chessie System Safety Rules)

## Analysis

The stands controlling the switches to the interchange tracks are located on the north side of the main track. The yard tracks located north of the main track are lighted, but the yard track located south of the main track is not lighted. The knuckles of the fifth and sixth cars in the train were closed when examined. The angle cock of the fifth car was closed. There were no witnesses at the scene, and the actual circumstances of the accident could not be determined.

## Cause

The employee apparently attempted to cross from the south to the north side of the main track immediately after the uncoupling of the fifth and sixth cars, and he was caught between the couplers.

REPORT: 44

RAILROAD: Burlington Northern

LOCATION: Medora, North Dakota

DATE: August 26, 1980

## The Accident

A 54-year-old maintenance-of-way laborer was fatally injured on August 26, 1980 at about 11:00 a.m. near Medora, North Dakota. Employed by Burlington Northern, the laborer had 4 years of service.

## Background

The area where the accident occurred was the site of a temporary, outlying maintenance-of-way camp for a track crew working in the area. The laborer, on duty at the time of the accident as camp-tender, was responsible for general work assignments in the camp area. His duties included maintaining supplies of bottled gas for the bunk and cook cars, general maintenance work, and delivering lunches to maintenance-of-way employees.

A cook and a timekeeper saw and spoke with the camp-tender at the camp site on the morning of the accident. Neither recalled anything unusual occurring that could be related to the accident.

The laborer had been employed by the carrier for about 5 months in 1973, after which he resigned. He was reemployed in 1976 and had a physical examination in 1977.

## Circumstances to the Accident

When the noon meal was ready for the employees at the work area, the cook and timekeeper could not locate the laborer to make the delivery. At about 11:45 a.m. two employees saw the laborer under his motor vehicle, as though he were working on it. Closer examination revealed the left front wheel of the truck was resting on his chest. The employees who found the body said that no vital life signs were apparent.

Examination by the coroner indicated that the laborer had died at approximately 11:00 a.m., as a result of a crushing injury caused by the left front wheel of the vehicle.

## Applicable Rules

39. Employees shall not place any part of their body under a vehicle to make inspection or repair unless the engine is stopped and vehicle is properly blocked to prevent movement.

. . . . . . .

(Burlington Northern Safety Rules)

## Analysis

The vehicle was parked on a grade exceeding 10 percent. The employees discovering the accident stated that they found the parking brake released, the automatic transmission gear shift in the neutral position, the engine off, and no wheel chocks were used.

Carrier officials reported that the laborer may have been working beneath the vehicle when he mistakenly or accidently released the parking brake or moved the gear shift selector linkage. This caused the truck to roll down the grade, inflicting the fatal injury. There were no witnesses to the accident, and the exact circumstances cannot be determined.

## Cause

The laborer failed to properly block or secure the vehicle before going under it.

REPORT: 45

RAILROAD: Chesapeake and Ohio Railway Company

LOCATION: Olive Hill, Kentucky

DATE: August 29, 1980

## The Accident

A 22-year-old trackman was fatally injured on August 29, 1980 at about 9:00 a.m. at the Olive Hill station in Olive Hill, Kentucky. Employed by the Chesapeake and Ohio Railway Company, the trackman had 2 years of service.

## Background

At the time of accident, the trackman was mowing grass in the railway station yard at Olive Hill, Kentucky. The station yard is practically level, except for a slope of approximately 45 degrees beginning about 6 feet from and extending to the edge of the street. A service pole supporting a power line owned by the City of Olive Hill is located just below the crest of this slope, approximately 20 feet west of the railway station. The service pole is equipped with a single crossarm on the top, approximately 30 feet above the ground, supporting a 2-wire, 2,400-volt service. A double crossarm is located 10 feet below the single crossarm, supporting step-down transformers and fused cut-outs.

An anchoring cable or "guy" wire is attached to the service pole just below the single top arm. It extends to a ground anchor located 4 feet from the base of the pole.

The trackman had been on duty for 1 hour at the time of the accident, and he was working alone.

The trackman passed a pre-employment physical examination before entering the carrier's service on May 4, 1978.

## Circumstances of the Accident

As the employee pushed the mower down the slope near the service pole, he braced himself by placing one hand on the cable wire to control the mower. The pressure on the "guy" wire caused it to touch the transformer's primary lead below the insulator. He was immobilized by the current flow and was unable to release his hold on the "guy" wire. The fused "cut-out" blew and he fell to the ground.

The employee was taken to the hospital at Morehead, Kentucky, and was pronounced dead on arrival.

## Applicable Rules

283. . . . . . . . .

B. Use of Guy Insulators

. . . . . . . .

2. "TWO INSULATORS.

Where a guy attached to any pole carrying communication or supply conductors or both, is carried over or under any overhead supply conductor of more than 300 volts to ground and where hazard would otherwise exist, two or more guy insulators shall be placed so as to include the exposed section of the guy between them as far as possible. Neither insulator shall be within 8 feet of the ground."

(American National Standard - National Electrical Safety Code)

H. It is the duty of every employee to use personal judgment and exercise care to avoid injury to themselves or others. No job is so urgent that sufficient time cannot be allowed to perform all work safely.

(Chessie System Safety Rules)

## Analysis

Simulated pressure applied to the pole "guy" wire verified that it could move a sufficient distance to touch the exposed primary lead. As a result, the lead was rerouted by the power company after the accident. Two non-employee witnesses stated that they saw the trackman brace himself on the "guy" wire; they saw a flash as the "guy" wire touched the transformer's primary lead. Seconds later, the "cut-out" fuse blew, and the trackman dropped to the ground.

## Cause

The trackman touched an electric pole "guy" wire that was not properly insulated.

REPORT: 46

RAILROAD: Missouri Pacific Railroad Company

LOCATION: St. Louis, Missouri

DATE: September 5, 1980

## The Accident

A 34-year-old switchman was fatally injured on September 5, 1980 at about 11:55 p.m. in Ivory Yard in St. Louis, Missouri. Employed by the Missouri Pacific Railroad Company (MP), the switchman had 1 1/2 years of service.

## Background

Ivory Yard has 20 yard tracks and a spur track connected at the southwest end to a lead track. The yard is located west of the two main tracks. In the accident area, all tracks are practically level with a slightly descending grade from north to south.

The accident occurred approximately 25 feet south of the north switch to track No. 3 on the switch lead. The switchman was a member of YES-2, a yard switching crew which consisted of a footboard yardmaster, two switchmen, and an engineer. The crew had been on duty for 55 minutes after completing the required off-duty period. They were performing switching operations from the north end.

The employee was last examined and passed the Uniform Code of Operating Rules on August 7, 1980. His last physical examination was administered and passed on March 12, 1979.

## Circumstances of the Accident

At the time of the accident, the footboard yardmaster was standing approximately 3 carlengths south of the switchman. The field switchperson was on the switching lead, 10 feet from the switchman.

The crew was in the process of switching nine cars. The switchman was pulling pins on the cut of cars being switched. The foreman gave a kick signal to the engineer; and as the cars moved at about 3 to 4 mph, the switchperson stated that the switchman missed the coupler release handle on MP 709809.

The switchman was making a second attempt to reach the coupler's release handle when he fell face down between two cars (MP 650279 and MP 709809). The west wheels of one car (MP 709809) passed over the switchman, killing him instantly.

## Applicable Rules

General Rules

G. The use of intoxicants or narcotics is prohibited. Possession of intoxicants or narcotics while on duty is prohibited.

. . . . . . .

COUPLING OR UNCOUPLING CARS, ENGINES OR OTHER EQUIPMENT

90. Do not go between or in front of moving locomotive, cars, or other equipment. Do not use both hands or both feet on uncoupling lever of moving cars. Stop equipment if lever cannot be operated with one hand or one foot.

(Uniform Code of Safety Rules)

## Analysis

The first and second wheels of a car being switched passed over the switchman. Witnesses at the scene stated the body was severed.

An autopsy was performed. The toxicologist stated that the amount of alcohol found in the employee's system was 0.111 mg. This exceeds the State of Missouri's statutory intoxication level of 0.10 mg.

## Cause

The switchman failed to keep clear of moving cars and was struck by a freight car.

A possible contributing factor was the use of alcohol by the switchman.

REPORT: 47

RAILROAD: Southern Railway Company

LOCATION: Spartanburg, South Carolina

DATE: September 15, 1980

## The Accident

A 51-year-old car foreman was fatally injured on September 15, 1980 at about 6:55 p.m. at the Hyne Junction's East Yard in Spartanburg, South Carolina. Employed by the Southern Railway Company, the foreman had 27 years of service.

## Background

East Yard has 20 tracks, connected at both ends, north of the main tracks. In the accident area all tracks have a slightly descending grade from west to east. At the time of the accident, there were five locomotives working on the second shift. Yard limits are established.

The accident occurred in track No. 12. The car foreman was working as a relief general foreman. He worked his regular shift as car foreman on September 13, from 2:30 p.m. until 11:30 p.m.; was off duty on September 14; and reported for the general foreman's job at 3 p.m. on the day of the accident.

The employee acknowledged that he had read and understood the Blue Flag Rule on January 1, 1980. He last attended a carrier safety meeting on August 19, 1980.

## Circumstances of the Accident

The foreman was contacted on the company phone by the yardmaster at around 6:45 p.m. and asked to inspect a damaged empty woodrack (SOU 141807) on track No. 12.

At approximately 6:55 p.m., a yard crew, working from east to west, switched five empty woodracks into track No. 12. The five cars were coupled to SOU 141807, which was standing about 970 feet west of the east-end switching lead.

Two car inspectors returned to the repair track a little after 7 p.m. and made several unsuccessful attempts to contact the foreman by radio. Around 7:30 p.m., they were still unable to contact him. They called the yardmaster to inquire about the foreman. The yardmaster told them that he had not been in contact with the foreman since 6:45 p.m.

The employee was found at about 8 p.m., under the west end of SOU 141807, lying face down with his left leg severed at the hip and groin area, his arms outstretched toward the east end of the car, the truck bolster over his upper body, and his belt caught in the dead lever securement hook. He was pronounced dead at the accident scene by the local coroner.

## Applicable Rules

26. Blue flags or blue lights by day, and blue lights at night, must be displayed as follows by workmen assigned to and engaged in inspecting, testing, repairing or servicing engines or cars:

On a classification track of a hump yard:

> At or near each hand-throw switch. Each hand-throw switch, including crossover switches, must be lined for movement to another track.

On any other track:

> (1) At each end of the engine(s) or car(s) to which a coupling can be made, OR at each entrance to the track.

. . . . . . . .

(Southern Railway System Operating Rules)

Subpart B - Blue Signal Protection of Workmen

218.27 Workmen on track other than main track.

When workmen are on, under, or between rolling equipment on track other than main track --

(a) A blue signal must be displayed at or near each manually operated switch providing access to that track.

. . . . . . . .

(Code of Federal Regulations - 49 Transportation Parts 200 to 399)

## Analysis

There was no blue flag/light marker at or near the car the foreman was inspecting.

The first wheel on the north side of SOU 141807 -- the sixth car on track No. 12 -- showed evidence of having passed over the employee.

There were no witnesses to the accident.

## Cause

The employee failed to stand clear of equipment being switched onto the track and was run over by a freight car.

A contributing factor was the failure of the employee to place blue flag signals at each end of the track for protection.

REPORT: 48

RAILROAD: Soo Line Railroad Company

LOCATION: Schiller Park, Illinois

DATE: September 23, 1980

## The Incident

A 54-year-old engineer became fatally ill on September 23, 1980 at about 8:05 a.m. in Schiller Park, Illinois. Employed by the Soo Line Railroad Company, the engineer had 33 years of service.

## Background

Schiller Park Yard is a flat switching yard consisting of 29 tracks, extending north and south, for multiple classification and storage of cars.

The engineer reported for duty at 6:50 a.m. on the day of the incident. He was a member of a yard crew which consisted of a fireman, a yard foreman, and two switchmen. The crew was assigned to the south end of the yard. The crew had been on duty on the south-end yard assignment for 2 hours and 15 minutes after completing the required off-duty period.

The engineer's last physical examination by a company doctor was on January 15, 1971.

## Circumstances of the Incident

Before the engineer became ill, the crew put a caboose on track No. 10, took four or five cars off track No. 11, and coupled these cars onto a caboose on track No. 10. The switchmen were standing on the ground on the west side of the cars near the caboose. The engineer was seated on the west side of the cab's locomotive controls, and the fireman was in his seat on the opposite side of the locomotive. The front of the locomotive was facing south. The engineer and fireman were engaged in a conversation while the locomotive was stationary. When the engineer failed to respond to a statement by the fireman, the fireman looked over and thought the engineer was sleeping. He went to the engineer, realized something was wrong, and called for emergency assistance.

The engineer received emergency medical treatment at the scene by paramedics and was transported to a hospital for further treatment. He was pronounced dead at the hospital at 9:57 a.m.

## Analysis

Not applicable.

## Cause

The county medical examiner cited the cause of death as coronary heart disease with "mild miocardial infarction and organizing thrombosis . . . ."

REPORT: 49

RAILROAD: Southern Pacific Transportation Company

LOCATION: Houston, Texas

DATE: October 2, 1980

## The Accident

A 32-year-old switchman was fatally injured on October 2, 1980 at about 10:30 p.m. in Englewood Yard in Houston, Texas. Employed by the Southern Pacific Transportation Company, the switchman had 6 years of service.

## Background

Englewood Yard is a hump classification yard with 64 classification or "bowl" tracks. The bowl tracks extend east and west and are connected on each end by lead tracks. Cars are humped east to west with the free rolling cars entering the bowl tracks at the east end. The speed of the cars is controlled by a series of electric-powered retarders on the east end. Each bowl track is equipped with an inert retarder located about 400 feet from the west end to prevent cars from rolling out.

The switchman was a member of a yard switching crew which consisted of a foreman, two switchmen, and an engineer. The crew had been on duty for 6 hours and 41 minutes after completing the required off-duty period.

The employee had worked 5 years in the car department, and 1 year 4 months as a brakeman/switchman. He received 19 days of training for the position of brakeman/switchman. The training was held from May 7 through May 25, 1979 and consisted of classroom and field instruction. The employee was given a rules examination on June 23, 1979.

## Circumstances of the Accident

The accident occurred at the fouling point of bowl track No. 23 and lead track No. 18. The switch crew had been instructed to weigh 15 cars and were shoving these cars west on lead track No. 18, stopping clear of the scale track switch. The crew was working on the north side of lead track No. 18. The switchman was positioned about two carlengths ahead of the engine to pass signals to the engineer. The engineer said that after he stopped the cars on lead track No. 18, he heard a coupling noise. He turned and saw three cars rolling out of bowl track No. 23 toward lead track No. 18 and the standing cars. The engineer blew the engine whistle and gave a hand signal to the switchman to alert him to the impending collsion

The switchman crossed through the cut of cars on lead track No. 18. The engineer got off the engine and saw the switchman drop his lantern and mount the west end of the west car which was rolling on bowl track No. 23. The switchman operated the low-mounted vertical wheel hand brake. The collision occurred approximately 30 feet east of the point where the switchman mounted the car. At the time of the collision, the switchman was attempting to get off the car.

The switchman sustained crushing injuries to the right hip, back, and pelvic areas. He was air-lifted to a hospital where he received emergency treatment. He was pronounced dead at 2:45 a.m. on October 3, 1980.

## Applicable Rules

GENERAL RULES

> O. . . . . . . . .
>
> Employes must exercise care to avoid injury while getting on or off either standing or moving equipment . . . .
>
> . . . . . . . .
>
> When getting off moving equipment, employes must look in direction of movement to be sure there are no obstructions. They must put trailing foot down first and not release handhold until it is safe to do so.
>
> (Southern Pacific Transportation Company Rules and Regulations of the Transportation Department)

## Analysis

A post-accident examination of the car on which the employee was riding found minimal damage, indicating a low-speed collision. The bottom tread of the side ladder was crushed against the car, the end ladder stile was slightly bent, and a horizontal plate was slightly bent. Damage to the car was reported to be confined to a slightly bent handhold. The engineer of the switch crew and two yardmasters witnessed the accident.

There was evidence that the inert retarder on bowl track No. 23 malfunctioned. Several bolts and washers were replaced in the retarder. There is no set maintenance schedule on the inert retarders. The day following the accident, inert retarders on bowl tracks No. 1 through No. 32 were checked. Three retarders had less tension than the Southern Pacific's requirement, and all were re-worked.

## Cause

The accident was caused by the employee's failure to stay clear of the point of collision.

The rollout of the three cars was caused by either a switching error resulting in overspeed or by an inert retarder not functioning as intended.

REPORT: 50

RAILROAD: Soo Line Railroad Company

LOCATION: Tesch, Michigan

DATE: October 6, 1980

## The Accident

A 56-year-old section foreman was fatally injured on October 6, 1980 at about 8:30 a.m. near Tesch, Michigan. Employed by the Soo Line Railroad Company, the section foreman had 33 years of service.

## Background

The accident occurred on the Soo Line Railroad Company's Eastern Division main track between Eustis and North Escanaba, Michigan. At the point of the accident, the track is tangent with a 0.7-percent descending grade in the direction of the movement.

On the day of the accident the section crew consisted of a foreman and two laborers. The crew was scheduled to continue surfacing the main track westward from Mile Post 330.3.

The section foreman was last examined on the Consolidated Code of Operating Rules and the Rules Governing the Movement of Track Equipment on July 24, 1979. His last physical examination was passed on June 1, 1977. The tamper operator was last examined on the Consolidated Code of Operating Rules on May 10, 1977.

A tamping machine was assigned to the project. The section crew placed its track motor car and a push car loaded with a home-made ballast sweeper on the track at Tesch (Mile Post 327.6). They were waiting for the tamper to arrive from Eustic (Mile Post 325.1). The motor car had been modified by installation of plywood sides with hinged doors on each side. This modification is similar to many other section motor cars on the Soo Line.

## Circumstances of the Accident

When the tamper arrived and the operator made his daily phone report to the regional engineer, the section crew and the tamper proceeded east to the work site. Stops were made at two rail-highway crossings. Both units continued east to Mile Post 329.53 where the section crew was to put up blue flag protection.

Approaching Mile Post 329.53, the section foreman signaled the tamper operator of the pending stop. Before coming to a complete stop, the section crew saw the tamper approaching. The tamper operator was waving or making a signal to keep moving east. A laborer who was seated on the right front side of the section car jumped out. The other laborer who was seated on the left front side assisted the section foreman, who was in the back of the vehicle, in attempting to shift to a forward gear.

The tamper collided with the stopped vehicles, derailing the push car, the motor car, and the lead wheels of the tamper. The motor car and push car were thrown to the left and turned 180°. Skid marks on top of the rail indicate the tamper slid 153 feet before colliding with the push car; it came to a stop 73 1/2 feet from the point of collision. The radiator of the tamper was punctured. The frame and axles of the motor car were bent, and the right side door was torn off. The push car was demolished.

The section foreman may have attempted to leave the motor car or was thrown out by the collision. He was found between the rails beneath the tamper, 6 feet from the east end of the tamper. The employee sustained a fractured skull and lacerations of the head and right leg. He died 4 hours later.

## Applicable Rules

Rule 55. A track car must not follow within 1,000 feet of a moving train or another track car on the same track . . . .

. . . . . . . .

Rule 911. . . . Foreman and operators are expected to take the safe course in all cases of doubt or uncertainty and make a study of the work to be performed. Operators should be sure of every move to be made . . . .

. . . . . . . .

Rule 913. The operator of a machine must give his undivided attention to its operation. Others on or near his machine must not distract his attention except as necessary in case of emergency . . . .

(Soo Line Railroad Operating Rules and Instructions, Safety Rules and First Aid Instructions for the Maintenance-of-Way and Structures, Signals and Communications Employes)

## Analysis

The tamper was following the section crew to the work site. During the movement east to the work site, a light sensor, placed on the fuel tank, was sliding toward the edge. The tamper operator left the controls with the machine moving and placed the unit in a secure position. His personal tool box, which was on the opposite side on top of the air tank and pump covers, was also moving and he placed the box closer to the center of the machine. Some loose papers blew off, but he made no attempt to retrieve them. At that time he saw the section car ahead of him, but was unable to stop and collided with the push car.

The section crew and tamper had worked in the area for 2 days the previous week and were to continue surfacing track on the day of the accident. The practice of having the section crew precede the tamper eastward, setting out flag protection, and proceeding to the work site was planned; this repeated the procedures followed the previous week. There is no evidence of a specific discussion among the section foreman, crew, or tamper operator on the morning of the accident about stopping to set out flag protection. There were no mechanical defects with the motor car or tamper which may have affected the operation of either unit.

Although three employees were present, no one could specifically state whether the section foreman tried to jump out of the motor car or was thrown out and hit by the tamper, motor car, push car, tools, equipment being transported, or struck the track structure. The tamper operator knew and understood the rules to maintain at least 1,000 feet between his machine and other equipment moving in the same direction.

A test of the tamper's brakes and stopping distance was performed on October 6, 1980, by a Soo Line roadmaster and a tamper operator. The test was made on a grade similar to that at the point of the accident. The tamper was operated in an easterly direction at 22 mph, and the brakes were set in full emergency. The brakes locked the wheels, which slid on the rail for a distance of 149 feet, before coming to a complete stop. The shorter stopping distance may have been due to a dry rail, as opposed to dew on the rails on the morning of the accident.

## Cause

The tamper operator failed to keep a proper distance between his machine and the section equipment.

Contributing factors were the failure of the tamper operator to secure items of equipment on his machine, his preoccupation with placing the loose equipment in a safe position during movement, and failure to have a clear understanding of where a stop was to be made to set up flag protection.

REPORT: 51

RAILROAD: Bauxite and Northern Railway Company

LOCATION: Bauxite, Arkansas

DATE: October 15, 1980

## The Accident

A 56-year-old engineer was killed and a fireman injured on October 15, 1980 at about 7:30 a.m. in the Reynolds Metals Company's facility in Bauxite, Arkansas. Employed by the Bauxite and Northern Railway Company (BXN), the engineer had 26 years of service. The fireman had 23 years of service.

## Background

The BXN is a switching carrier serving industry in the Bauxite area. The carrier connects with the Missouri Pacific Railroad (MP) at the Bauxite Junction Yard. The yard is located on the MP's Arkansas Division, 18 miles south of Little Rock, Arkansas. The yard is situated on the south side, parallel to the MP's double main track, and is jointly operated by the two carriers. It consists of eight east/west tracks, connected at both ends. The track grade in the yard descends from west to east at a rate of 0.55 percent. Cars are interchanged by MP train crews at either end of the yard and by BXN switch crews at the east end. At the east end of the yard, the main tracks of both carriers are protected by a single derail.

The Bauxite Junction Yard is the western terminus for the BXN. From the yard's east end, a segment of main track extends eastward into the Reynolds Metals Company's facility, a distance of about 2 miles. On this segment of track a descending grade prevails from west to east.

The BXN subscribes to the Uniform Code of Operating Rules but has no specific instructional program. The general manager periodically conducts informal rules discussions and safety meetings. The frequency of the employees' attendance is not recorded.

The accident occurred on the main track, 150 feet inside the fenced enclosure of the Reynolds Metals Company's Hurricane Creek facility. The engineer was a member of the 6:30 a.m. switching assignment crew which consisted of a conductor, an engineer, a fireman, and two brakemen. The crew had been on duty for 1 hour after completing the required off-duty period.

## Circumstances of the Accident

On the day of the accident the crew took a single switcher locomotive from the locomotive service track and traveled to the Bauxite Junction Yard. The locomotive was coupled to a cut of cars that were to be pulled eastward and delivered to the Reynolds Metals Company. The crew rode the locomotive as they left the yard at 6:35 a.m. The derail at the east end of the yard was left off. A BXN clerk was responsible for restoring the derail after the crew departed. On this occasion, the clerk failed to replace the derail after the movement was completed and left the area at 7:10 a.m.

At about 6:00 a.m., MP train No. 751 arrived at the Bauxite Junction Yard. At the west end of the yard, 82 cars were removed from the consist and delivered to the BXN on two separate tracks. The locomotive entered track No. 2 and was coupled to a cut of eight cars.

The eight cars were pulled toward the west end of the yard where they were to be switched onto the train in station order. The movement was stopped near the west end of the track, and the conductor uncoupled the two cars at the east end. He released the hand brake on the fourth head car and signaled for the movement to continue westward. The conductor observed the two detached cars rolling eastward and attempted to overtake the cars on foot. The conductor signaled for a backup movement and began pursuit, using the locomotive and six cars. The crew saw the runaway cars pass the location of the derail at the east end of the yard and continue into the BXN's main track. After traveling about 1.5 miles, the MP crew stopped the pursuit and minutes later learned of the accident.

The cars hauled by the BXN from Bauxite Junction Yard were delivered to the Reynolds Metals Company's Hurricane Creek facility. Operating inside the facility, the locomotive was routed onto the service track and coupled to the west end of a cut of 14 cars that were to be switched to an adjacent track. One of the two brakemen made the air connection between the locomotive and cars, and gave the appropriate signal. When the air brakes released, the cars were pulled westward. The two brakemen were beside the cut of cars, about 200 feet east of the locomotive; the conductor was performing other duties in a nearby yard. The engineer and firemen saw the run-away cars come into view. The engineer made an emergency brake application. Both employees stood up and braced themselves against the control console of the locomotive. The east car overrode the frame of the locomotive and pinned the engineer in the wreckage of the cab. The fireman sustained a lacerated foot and strained shoulder. Witnesses estimated the speed of the cars to be 30 mph.

## Applicable Rules

103(a) . . . Employees must observe the following precautions is switching movements:

(1) See that cars left on tracks are properly secured, . . . .

. . . . . . .

(4) When necessary to control cars by hand brakes, know that sufficient brakes are in working order before cars are cut off.

104 . . . . . . .

(8) Derails must be set to derail, . . . unless lined to permit movements.

(Uniform Code of Operating Rules)

## Analysis

Records indicate that the eight cars being handled by the MP crew were the remainder of a cut of 30 cars delivered by the BXN at 9:00 a.m. on October 14, 1980. According to statements from BXN employees, the air brake system was in use on the cut of cars and a hand brake was applied on one car at the time of delivery.

In the Missouri Pacific's formal investigation, the conductor of train No. 751 stated that he released the hand brake on one car in the cut of eight cars, but did not apply a brake on either of the two cars uncoupled at the east end of the cut. Post-accident inspections and tests indicated that the air brake system and the hand brakes on the two cars were in effective operating condition.

The employees of both carriers had a working knowledge of the Bauxite Junction Yard and were fully aware of the track grade. The investigation revealed that both crews failed to observe common precautions in exercising their duties and failed to follow the prescribed rules.

## Cause

The accident was caused by failure of the BXN's switching crew to restore the derail and the failure of the MP's crew to apply sufficient hand brakes to secure the cars.

REPORT: 52

RAILROAD: Atchison, Topeka and Santa Fe Railway Company

LOCATION: Roymayor, Texas

DATE: October 15, 1980

## The Accident

A 39-year-old brakeman was fatally injured on October 15, 1980 at about 9:50 a.m. near Roymayor, Texas. Employed by the Atchison, Topeka and Santa Fe Railway Company (ATSF), the brakeman had almost 15 years of service.

## Background

The ATSF operates a single main track between Somerville and Silsbee, Texas, known as the Conroe District of the Southern Division. At Roymayor there is a siding, 8,540 feet in length, located south of the main track. From this siding tracks extend east and west to form a wye track. Wye tracks join north of Texas State Highway 105 and cross the highway approximately 0.4 mile east of Roymayor as a single track. The rail-highway crossing (DOT 24409X) is protected by crossbucks. The tail track, track No. 1085, serves Dolen Plant 36 of Lone Star Industries.

On the day of the accident, the train crew consisted of a conductor, an engineer, a front brakeman, and a flagman.

The employee's last rules examination was on May 5, 1980.

## Circumstances of the Accident

The crew went on duty at Silsbee at 7:00 a.m. and departed with two locomotive units (No. 2261 and No. 2184), six loaded cars, and 18 empty cars. The final destination was Conroe, Texas. The train arrived at Roymayor at 9:20 a.m. where the crew performed station switching at Lone Star Industries. The crew left the train on the main track and backed into the siding with four cars. The flagman remained with the rear portion of the train, providing flag protection. The brakeman rode the lead end of the head car to the west leg of the wye across State Highway 105 to couple 14 cars on the Lone Star tail track. The conductor and engineer on the lead locomotive unit pulled the 14 cars out of the tail track, placed them in the siding, and proceeded back with the 4 cars to be left on the tail track. The conductor was on the steps of the rear unit, and the front brakeman was on the lead end of the lead car. The movement was proceeding at less than 5 mph. Using a hand-held radio, the front brakeman stopped the movement to clear the crossing at Highway 105. He signaled by radio, and the four cars were moved to a clear point on the south side of the crossing. The conductor was on the ground on the north side of the crossing, and the rear brakeman was on the ground on the south south side of the crossing. They looked to the east and saw a log truck approaching with its horn sounding; the truck was apparently unable to stop. The conductor jumped between the rear locomotive unit and the first car. The front brakeman ran down a road on the east side of the tail track. The truck driver turned down this road and the vehicle went out of control, rolled over, and stopped between the road and the tail track. The load of logs fell on the front brakeman, crushing him to death.

## Applicable Rules

Not applicable.

## Analysis

The truck driver stated that as he approached the crossing his speed was between 40 and 45 mph. He saw that the crossing was occupied when he was about 900 feet away. He sounded his horn and attempted to stop, but realized that he was not going to be successful in this attempt. He saw two men running south and noticed the road east of the rail cars. He attempted to turn down the road to the left, but skidded and lost control of his vehicle which turned upside down. He climbed out the front windshield and was not injured.

Witnesses stated the truck would have struck the train at the crossing if the driver had not attempted to turn down the secondary road.

## Cause

The truck driver failed to control the speed of his vehicle in order to stop at the rail-highway crossing until the standing train had cleared the crossing.

REPORT: 53

RAILROAD: Illinois Terminal Railroad Company

LOCATION: Granite City, Illinois

DATE: October 17, 1980

## The Accident

A 27-year-old conductor was fatally injured on October 17, 1980 at about 7:30 p.m. in the A. O. Smith Yard in Granite City, Illinois. Employed by the Illinois Terminal Railroad Company, the conductor had nearly 3 years of service.

## Background

The yard has five tracks which are connected at both ends. The yard is practically level and lies geographically east and west. A track known as the "Old Dock" extends from the west end of yard track No. 1 to a dock facility. These tracks are tangent in the accident area. Yard limits are established in this switching district.

The yard crew consisted of a conductor, two switchmen, and an engineer. At the time of the accident, the crew had been on duty for 3 hours and 35 minutes after completing the required off-duty period.

The employee was last examined and passed the Operating Rules test on April 21, 1979 and attended a safety rules class on July 1, 1980.

## Circumstances of the Accident

The accident occurred on the Old Dock track just west of the west switch of track No. 1. The crew assembled a cut of 16 covered hopper cars loaded with grain and was preparing to shove the cars, using air brakes, westward onto track No. 1 to the dock facility. The conductor and a switchman were riding on the forward, west end of the lead car. The engineer was operating a single locomotive unit in reverse and was seated on the south side. The other switchman was on the north side of the locomotive cab. After receiving a radio communication to start shoving the cars, the engineer accelerated the movement to a speed of between 12 and 15 mph. After moving about 2,400 feet, the lead car passed over the west switch of track No. 1. Fifteen inches beyond the switch point, the west (lead) truck suddenly derailed. The car overturned on its right side, crushing the conductor. The switchman was thrown off the car but escaped serious injury.

## Applicable Rules

Rule 105. Trains or engines using any track other than a main track must proceed at YARD SPEED.

Definitions. YARD SPEED . . . A speed prepared to stop within one-half the range of vision.

(Illinois Central Gulf Railroad Operating Rules . . . used by Illinois Terminal Railroad Company)

## General Special Instructions

Freight trains will not be continuously operated at speeds between 13 MPH and 19 MPH. Such speeds will be permissible only in acceleration or deceleration of movement.

(Illinois Terminal Railroad Timetable No. 7 April 15, 1980)

## Analysis

The wheel and truck components of the freight car involved in the accident were found to be in good condition. This type of covered hopper car, however, has a high center of gravity.

Carrier officials stated that the derailment was caused by "wheel lift apparently resulting from rock-and-roll initiated by excessive speed and track conditions east of No. 1 switch." Inspection of the track structure verified irregular cross-level on track No. 1 just before the point of derailment.

## Cause

The accident was caused by irregular track cross-levels, an operating speed within the critical range, and the car's high center of gravity which caused an imbalance. These factors produced wheel lift and derailment of the freight car which overturned, killing the employee.

REPORT: 54

RAILROAD: Union Pacific Railroad Company

LOCATION: Egbert, Wyoming

DATE: October 17, 1980

## The Accident

A 64-year-old track laborer was fatally injured on October 17, 1980 at about 2:25 p.m. in Egbert, Wyoming. Employed by the Union Pacific Railroad Company, the track laborer had 22 years of service. The weather was clear, cold, and a north wind blowing at 35 mph.

## Background

Control point 481 is located 3.2 miles west of Egbert, Wyoming. There is a powered double crossover at this point, connecting main tracks No. 1 and No. 2. On the north side of track No. 1 between the two crossovers there is a small warming shelter. On a mast projecting above the roof of the structure there is a rotating blue light. An electronic siren is installed over the entrance to the shelter. The circuit to these devices is energized by trains entering the approach blocks to the control point. Final control of the warning devices is provided by a switch located inside the shelter. Instructions were in effect requiring the use of the warning system while employees were working in the area.

The employee last attended a safety meeting on October 13, 1980. Safety meetings are conducted each Monday morning by the crew foreman who keeps a record of each rule discussed. The employee's last physical examination was on April 26, 1977.

## Circumstances of the Accident

The "Sidney Local" (Extra 3238 West) performed station switching at Egbert. The locomotive was turned on the wye and coupled to the east end of four cars and a caboose. Extra 3238 West started backing toward point 481 where the train was to be routed through a crossover from track No. 1 to track No. 2 for eastward movement to Sidney, Nebraska. The front brakeman and engineer were seated in the locomotive, and the conductor was seated at the caboose desk. The rear brakeman was in the caboose cupola facing westward and using a radio to advise the engineer of block signal indications and other conditions affecting the train's operation.

Extra 3238 West approached point 481 at a speed of between 15 and 25 mph. As the train began to slow down and stop west of the signals to the control point, the rear brakeman saw a section crew working on the track and saw that they were beginning to move away from the track. He climbed down from the cupola and walked toward the caboose platform.

After the rear brakeman left the cupola, the caboose struck the employee and knocked him down between the rails. The train crew was unaware of the accident until the employee's body was seen under the east end of the locomotive.

## Applicable Rules

4045. Foremen or others in charge of employes working on or about the tracks, must instruct their men to be alert, watchful, and to keep out of danger, and must take necessary precautions to see that men working under their supervision receive warning of approaching trains in time to reach a place of safety.

(Union Pacific Railroad Company Rules Governing Duties and Deportment of Employes, Safety Instructions and Use of Radio)

767. Foremen must supervise and engage in all work of their gang; see that work is properly and safely done and make such reports as required.

. . . . . . .

(Union Pacific Railroad Company Maintenance of Way and Signal Rules)

## Analysis

The employee was wearing a hard hat with the ear flaps down and a hooded jacket because of the cold winds. There was a verbal warning of the approaching train from one of the workmen. The employee did not, however, respond as the other crew members moved away from the track.

The foreman was sitting in the cab of the crew truck parked on the south side of main track No. 2. He did not activate the switch that operates the siren and blue warning light when a train enters the approach blocks to the control point.

## Cause

The accident was caused by the employee's failure to see or hear the approaching train. A contributing factor was the foreman's failure to properly protect the employees in his charge by sounding the siren or activating the warning light.

**REPORT:** 55

**RAILROAD:** Baltimore and Ohio Railroad Company

**LOCATION:** Pittsburgh, Pennsylvania

**DATE:** October 21, 1980

## The Accident

A 47-year-old general track supervisor was fatally injured on October 21, 1980 at about 9:50 a.m. near Laughlin Junction. Employed by the Chessie System, the general track supervisor had 28 years of service.

## Background

Port Authority Transit passenger trains are operated over the Baltimore and Ohio Railroad (BO) by BO employees between Versailles, Pennsylvania, and the passenger station in Pittsburgh, Pennsylvania. This is a distance of 18 miles. Trains are operated under control of a traffic control system and authority of block signals.

The accident occurred on the single main track of the Western Subdivision at Mile Post (MP) 325.9. In the accident area the main track has a 2-degree, 30-minute curve and is paralleled by a yard-running-track, the "Parkway East" (a four-lane highway), Route 885 (a two-lane highway), and the Jones and Laughlin Steel Corporation Plant.

## Circumstances of the Accident

At about 7:30 a.m. the general track supervisor was driven to the vicinity of MP 321 where he began inspecting ties. He worked from MP 321 to MP 323 where he was picked up by the local track supervisor and driven to MP 325. From MP 325 to MP 326.5, the general track supervisor was to spot-check ties. The local track supervisor arranged to meet the general track supervisor after this inspection.

Before leaving MP 325, the local track supervisor allegedly warned the general track supervisor that the main track he was inspecting was used for passenger trains in both directions, and that a westbound train was due very soon.

At about 9:50 a.m. the general track supervisor was checking ties on the main track near MP 325.9 when he was struck by Port Authority Transit commuter train No. 107, operated by BO employees.

The general track supervisor was standing between the rails, facing west, when the fireman called to the engineer to stop the train. The engineer's view of the track was restricted for about 1,600 feet by the long hood of the locomotive and the main track's curvature.

The train's brakes were applied in emergency and the horn was sounded. Train speed was reduced but not enough to stop before the general track supervisor was struck by the locomotive. He was pronounced dead at the accident site.

## Applicable Rules

44. Employees on or about tracks must always be alert to keep out of danger, exercising care to avoid injury to themselves and others. Nothing in these rules is to be construed as relieving any employee from performing his full duty in this respect.

45. Expect movement of equipment on any track, at any time, in either direction . . . .

46. Employees on or about any tracks, whether in the open, in shops, on bridges or in tunnels, must move to a place of safety upon the approach of rolling equipment on the track where they are working or on an adjacent track . . . .

(Chessie System Safety Rules)

## Analysis

As an experienced supervisor, the general track supervisor should have been aware of the hazards involved in performing his duties. He was aware of the fact that the main track was used for passenger trains operating in both directions.

## Cause

The accident was caused by the failure of the general track supervisor to remain clear of the main line track.

REPORT: 56

RAILROAD: Norfolk and Western Railway Company

LOCATION: East St. Louis, Illinois

DATE: November 2, 1980

## The Accident

A 57-year-old clerk was fatally injured on November 2, 1980 at about 4:30 a.m. in East St. Louis, Illinois. Employed by the Norfolk and Western Railway Company, the clerk had 39 1/2 years of service.

## Background

U.S. Interstate Highway 64 is a divided four-lane highway, running in an east-west direction. The westbound lanes merge into Interstate Highways 55 and 70, one-tenth of a mile west of the accident site. The Third Street exit is the westbound inside lane of I-55 and I-70. The Third Street exit travels eastbound under I-55 and I-70, merges with the northbound lane of St. Louis Avenue, and forms a two-lane street that intersects with Missouri Avenue.

The employee completed his regular assignment as clerk at 11:00 p.m. at the carrier's Luther Yard. At the carrier's request, he agreed to work an additional 8-hour shift beginning at 11:00 p.m., since the assigned messenger was ill. The carrier's records indicated that the employee had worked the messenger assignment on similar occasions. He had been on duty for 13 hours and 30 minutes when the accident occurred.

The employee held a valid State of Illinois motor vehicle operator's license. His last physical examination, on the carrier's records, was held on March 7, 1941.

## Circumstances of the Accident

The employee left the Louisville and Nashville Railroad yard office in East St. Louis driving a carrier-owned motor vehicle, en route to another railroad facility. He apparently turned east from Missouri Avenue into the westbound lanes of Third Street and entered the westbound lane of I-55 and I-70, using the Third Street exit ramp. He had traveled 0.8 mile in the wrong direction in a westbound lane of Interstate 64, when he encountered an eastbound vehicle on a curve in the same lane.

The vehicles collided head-on, killing the employee. The accident occurred on the westbound inside lane of Interstate 64 0.1 mile east of its intersection with Interstate Routes 55 and 70.

## Applicable Rules

G. The use of alcoholic beverages, intoxicants or narcotics by employees subject to duty, or their possession or use while on duty or on company property is prohibited.

(Norfolk and Western Railway Company Safety Rules)

3. Any employee driving a Company vehicle will comply with all applicable Local, State or Federal laws.

4. No one shall operate a vehicle while physically unfit, or after consuming any alcoholic beverage or incapacitating drug.

21. Vehicles must always be operated at a reasonable and safe rate of speed with due regard for existing speed regulations, traffic, weather, road, vehicles and other existing conditions. Vehicles will not be operated in a careless or reckless manner. Drivers will be responsible for familiarizing themselves with traffic ordinances of the area in which they travel. The driver will be solely responsible for all fines imposed and/or time lost when convicted of any traffic violation.

(Norfolk and Western Railway Company - Rules and Instructions Governing The Use, Operation And Maintenance of Norfolk and Western-Owned Highway Motor Vehicles)

## Analysis

The Third Street exit ramp from I-55 and I-70 westbound begins from the inside lane and exits to the left. The employee erroneously drove the vehicle onto a westbound lane of Interstate Routes 55 and 70 from the Third Street exit ramp. He travelled east against the flow of traffic and onto a westbound lane of I 64 when his vehicle collided head-on with an oncoming vehicle. There are no signs on the exit ramp warning traffic not to enter.

Blood and urine specimens were sent to the Illinois Department of Public Health for analysis. The percentage of ethanol content was 0.102 percent and 0.135 percent, respectively, in these specimens. A 0.10 percent ethanol blood content is considered to be an intoxicated level under Illinois State Law.

## Cause

The employee drove the motor vehicle onto an interstate highway against the current of traffic and collided with an on-coming vehicle.

Contributing factors were the absence of warning signs not to enter the exit ramp; and the employee may have been under the influence of alcohol.

**REPORT:** 57

**RAILROAD:** Louisville and Nashville Railroad

**LOCATION:** Sumner County, Tennessee

**DATE:** November 6, 1980

## The Incident

A 34-year-old flagman was shot on November 6, 1980 at about 5:00 p.m. in Sumner County, Tennessee. Employed by the Louisville and Nashville Railroad, the flagman had 13 years of service.

## Background

The flagman was seated in the west bay window area of a steel caboose at the rear of a train traveling from Louisville, Kentucky, to Nashville, Tennessee. The side window was open, and the train's speed was estimated to be 25 mph at the time of the accident.

## Circumstances of the Incident

The flagman and the conductor were seated in the caboose when the flagman was shot by an unknown assailant from an embankment above the track structure. The conductor was seated on the east side of the caboose and did not see the assailant(s) who fired the weapon.

No arrests have been made in this case, but the matter is under investigation by local, state, and carrier authorities.

## Applicable Rules

Not applicable.

## Analysis

The bullet entered the skull above the right ear and exited below the left ear. The bullet was found on the floor of the caboose. A ballistics report has not been released by the investigating authorities. The angle of the bullet's entry indicates that the weapon was fired at close range from an embankment to the west side of the track structure.

## Cause

The employee was killed by a gunshot fired by a person or persons unknown.

REPORT: 58

RAILROAD: National Railroad Passenger Corporation

LOCATION: Newark, New Jersey

DATE: November 12, 1980

## The Accident

A 51-year-old maintenance-of-way foreman was fatally injured on November 12, 1980 at about 1:35 p.m. at Lane Interlocking in Newark, New Jersey. Employed by the National Railroad Passenger Corporation (Amtrak), the foreman had 15 years of service.

## Background

Lane Interlocking is located on the Northeast Corridor's main line and consists of three main tracks numbered 2, 3, and 4. Trains normally operate in one direction on track No. 4. Using a traffic control system, trains operate in either direction on tracks No. 2 and No. 3. The maximum authorized speed for passenger trains at the accident location on track No. 2 is 100 mph, the maximum authorized speed limit is 110 mph on track No. 3, and 90 mph on track No. 4.

The accident occurred on track No. 3, 116 feet from the east end of a 0-degree, 18-minute curve. The track grade in the accident area is 0.49 percent ascending westward. Unobstructed sight distance at the point of accident is approximately 1.4 miles to the east and 1 mile to the west.

The carrier issues a book of safety rules to each employee in the maintenance-of-way department and conducts a "safety rule of the day" program with each crew. Supervisors periodically monitor compliance with the rules.

## Circumstances of the Accident

The foreman was assigned to remove ballast from the heel of a switch point and tamp switch ties after a tamper passed these locations, on track No. 2. While he was waiting for the tamper to move out of the way, witnesses said, the foreman stood between tracks No. 2 and No. 3, observing the operation of the tamping tools as they worked around the heel of the switch point.

Train No. 171 consisted of a locomotive and eight coaches, and was moving westward on track No. 3. Approaching the point of the accident, the engineer of train No. 171 estimated his speed to be approximately 65 to 75 mph. The fireman of the train saw the foreman step backward from beside the tamper into the path of the train. The engineer and fireman heard a thud. The engineer immediately made an emergency brake application and stopped the train approximately 0.5 mile west of the point of the accident.

## Applicable Rules

4123. Look in both directions for approaching train, self-propelled equipment . . . before performing any of the following acts associated with track . . . .

(G) Getting on or off or coming out from under or between train, self-propelled equipment, machinery or vehicles.

(Amtrak Safety Rules and Instructions)

## Analysis

At the time of the accident, watchmen were posted at both ends of the work area. The watchmen are equipped with visual and audible warning devices. Witnesses stated that the warning horns were sounded by the watchmen to alert the work crew of the approach of train No. 171. The foreman apparently did not hear the warning horns because of the noise generated by the tamper. The two tamper operators stated that the tamper was so noisy that the only sound they heard at the time of the accident was the passing of train No. 171.

## Cause

The foreman failed to look for trains approaching on an adjacent track before stepping away from the tamper.

A contributing factor was the noise generated by the tamper which prevented the employee from hearing the audible warning devices sounded by the watchmen.

REPORT: 59

RAILROAD: Baltimore and Ohio Railroad Company

LOCATION: Decatur, Illinois

DATE: November 13, 1980

## The Incident

A 41-year-old signal maintainer died following a cardiac arrest while repairing line wires on November 13, 1980 at about 12:28 p.m. in Decatur, Illinois. Employed by the Baltimore and Ohio Railroad Company, the signal maintainer had 19 years of service.

## Background

The employee reported for his regular duty assignment in Decatur, Illinois. He and a fellow employee proceeded to the intersection of William and 22nd Street where they were to repair lines on the north side of the intersection.

The signal maintainer had neither complained of illness nor had he been seen by a physician in the past year.

## Circumstances of the Incident

While his co-worker remained on the ground, the signal maintainer climbed a telegraph pole to splice wires on 12-volt lines. When the signal maintainer reached the top, his co-worker heard a sigh, looked up, and saw him slump forward. The signal maintainer did not respond when called, and emergency help was summoned.

## Applicable Rules

Not applicable.

## Analysis

The coroner's report stated that the employee suffered obliterative arteriosclerosis of the left and right coronary arteries, which is consistent with cardiac arrhythmia and acute pulmonary congestion.

## Cause

The cause of death was cardiac arrest.

REPORT: 60

RAILROAD: Seaboard Coast Line Railroad

LOCATION: Hamlet, North Carolina

DATE: November 16, 1980

## The Accident

A 33-year-old carman was fatally injured on November 16, 1980 at about 2:47 a.m. near Hamlet, North Carolina. Employed by the Seaboard Coast Line Railroad (SCL), the carman had 13 1/2 years of service.

## Background

The carman was a member of a crew that left Florence, South Carolina, with wrecking equipment on November 15, 1980, at 7:00 p.m., proceeding to a derailment site near Hamlet. The clearing of the derailed cars began at 12:40 a.m. Both the single main track and the tangent track were on a slight fill. Portable lighting equipment had been set up to provide suitable illumination in the area.

The employee was issued an SCL book of Safety Rules for Mechanical Department Employees. He attended 15-minute shop safety meetings conducted once a week by his immediate supervisor, and attended a daily reading of the "Rule of the Day." The employee had a physical examination at the time of his employment.

## Circumstances of the Accident

An empty flat car (ACL 73043) was lying on its side to the north of and parallel to the main track, with the bottom of the car nearest the track. Another empty flat car (SCL 110391) was lying on its side immediately north of ACL 73043 with its bottom adjacent to and parallel to the top deck of ACL 73043. Initial movements of the cars, using the wrecker, resulted in both cars lying much in their original alignment but with an 18-inch clearance between the center sill of SCL 110391 and the top deck of ACL 73043. The wrecker's cable hook had been freed from both cars for about 5 minutes when the carman and master mechanic stepped between the cars. They were determining where to place the cable hook on SCL 110391 for further movement. While they were in this area, verbal warnings from other employees were heard by the master mechanic. Both he and the carman started to leave the area. SCL 110391 rolled toward the main track, knocked the master mechanic to the ground, and came to rest in an upright position with the side sill resting on the carman. The carman sustained massive head injuries.

## Applicable Rule

Rule 77. Employees must stay out, . . . of wrecking . . . areas unless their duty requires it. In such cases, they must inform themselves fully of and protect against all hazards such as, but not limited to, . . . insecure materials or equipment, . . . .

(Seaboard Coast Line Railroad Safety Rules for Mechanical Department Employees)

## Analysis

Wrecking activities required moving two cars. This placed car SCL 110391 in an unstable position near the other car. No movement had occurred for about 5 minutes before the employees entered the limited clearance area between the cars. Then car SCL 110391 unexpectedly rolled over toward the main track.

## Cause

The carman and master mechanic failed to protect themselves in a potentially unsafe situation.

REPORT: 61
RAILROAD: Northwestern Pacific Railroad
LOCATION: Samoa, California
DATE: November 21, 1980

## The Accident

A 49-year-old brakeman was fatally injured on November 21, 1980 at about 8:15 p.m. in Samoa, California. Employed by the Northwestern Pacific Railroad, the brakeman had 26 years of service. There was a heavy rainstorm at the time.

## Background

The accident area has two parallel tracks designated as No. 1248 on the north and No. 1249 on the south. The grade for each track is slightly descending from east to west. Track No. 1248 extends westward through an 8-degree curve to the left and joins track No. 1249. Track No. 1249 extends 16 miles westward and is the main track to Eureka, California. A chain-link fence parallels track No. 1248 about 8 feet north.

The accident occurred on the north side of track No. 1248. The employee was the rear brakeman on a train crew which consisted of a conductor, two brakemen, and an engineer. The crew's assignment was to deliver cars from Eureka to Samoa, perform switching operations at various industries, and return to Eureka. They went on duty at Eureka at 4:00 p.m. on the day of the accident.

The brakeman passed the carrier's examination on the Book of Operating Rules on April 15, 1978. He passed his last physical examination on July 27, 1959. The carrier last recorded the employee's attendance at a safety training meeting on July 16, 1980.

## Circumstances of the Accident

The crew left a caboose and 11 cars on track No. 1249 and eight cars on track No. 1248. Immediately before the accident, they pushed six cars eastward onto track No. 1248 to couple them to the eight cars already there and picked up the 11 cars and caboose from track No. 1249.

The brakeman directed the movement on track No. 1248 via radio. After the cars were coupled, he connected the air hoses between the cars and opened the angle cock so the engineer had control of the cars's air brakes. He then gave a proceed signal via radio.

The locomotive pulled the 14 cars westward on track No. 1248, moving at about 5 mph. After the locomotive moved about 1,200 feet, the fifth through ninth cars derailed. Flat car (SSW 88377) derailed to the north and tilted at an angle of 45 degrees. Lumber fell from the car on the brakeman. The brakeman was dead when carrier employees removed the lumber.

## Applicable Rules

Not applicable.

## Analysis

The locomotive was pulling 14 cars down a slightly descending grade around an 8-degree curve. The track spread in the vicinity of the sixth car on track No. 1248, causing the derailment of five cars. Lumber fell off a flat car (SSW 88377) and fell on the brakeman. He was on the outside of the curve and was trapped between the cars on track No. 1248 and a fence.

The lumber on the flat car was properly secured, according to the loading inspector in Eureka. The train was being operated in accordance with the operating rules at the time of the accident.

## Cause

The derailment occurred when the rail spread under the car. The lading from a derailed flat car fell from the car and killed the employee.

REPORT: 62

RAILROAD: Southern Railway Company

LOCATION: Crawford, Florida

DATE: November 24, 1980

## The Accident

A 25-year-old bridge and building laborer was fatally injured on November 24, 1980 at about 2:22 p.m. in Crawford, Florida. Employed by the Southern Railway Company, the laborer had 11 months of service. A light rain was falling at the time.

## Background

The accident occurred on part of a Southern Railway bridge (248.46) which spans a dry-bed portion of Thomas Creek near Crawford. This single track ballast-deck bridge is 750 feet long and about 7 feet above the creek bed.

The employee was the member of a bridge crew (No. C-9) that consisted of a foreman and five laborers. They reported for work at 7:00 a.m. to replace the wooden deck portion of the bridge with a steel plate deck.

The laborer attended a safety meeting at 7:00 a.m. on the day of the accident. Safe footing was one of the topics discussed.

## Circumstances of the Accident

At the time of the accident, the laborer was hooking a section of timber to be removed by a crane with timber hooks. With his right foot on top of the timber and his left foot on the ballast section, he placed the hooks on the timber and started to step back in the clear. Witnesses stated that the laborer fell and landed on his feet. He then fell backwards and struck the back of his head on an "I" beam which was lying on the ground parallel to the bridge. He died instantly.

## Applicable Rules

Not applicable.

## Analysis

When the laborer's foot slipped on the ballast, he lost his balance and fell off the bridge to the ground.

The foreman and a crane operator stated that the employee had been hooking timbers for several weeks before the accident.

The weather conditions may have caused the ballast section of the bridge to be slippery, but this factor could not be verified.

## Cause

The accident was caused by failure of the laborer to maintain a secure footing on the ballast section of the bridge.

REPORT: 63

RAILROAD: Norfolk and Western Railway Company

LOCATION: Cleveland, Ohio

DATE: December 2, 1980

## The Accident

A 26-year-old brakeman was fatally injured on December 2, 1980 at about 4:55 p.m. in Cleveland, Ohio. Employed by the Norfolk and Western Railway Company, the brakeman had 4 years of service.

## Background

The accident occurred on an industrial track owned by C. Schmidt and Sons, Incorporated. There are three stub-end tracks leading into the loading dock building. The tracks run west to east and are numbered north to south. In the accident area the tracks are adjacent to loading docks which are 44 inches high. At the accident point on track No. 3 there is a 19-degree, 56-minute curve to the left, resulting in close clearance.

The brakeman was a member of a yard switching crew that consisted of a conductor, two brakemen, an engineer, and a fireman. The crew had been on duty for 6 hours and 55 minutes after completing the required off-duty period.

The brakeman was last examined on the carrier's Book of Operating Rules and Safety Rules on October 22, 1980. His last physical examination was administered on the date of his employment, April 29, 1976.

## Circumstances of the Accident

Shortly before the accident, the switching locomotive was shoving two cars onto track No. 3 to couple and remove a car at the end of the track. The locomotive was moving at about 2 mph.

The brakeman was standing on the north side of the track, east of the curve between the loading dock and the moving cars. He was looking east in the direction of the movement when he suddenly stepped into the curve at the close clearance point.

The lead car had passed the brakeman when the engineer saw that the brakeman was in danger of being pinned between the loading dock and the second car. The engineer made an emergency air brake application at the same time as the car struck the brakeman. The brakeman was pinned between the loading dock and the car in an area with 8 inches of clearance. The brakeman was taken to a local hospital where he was pronounced dead on arrival.

## Applicable Rules

M. Employees must exercise care to avoid injury to themselves or others . . . .

. . . . . . . .

They must inform themselves as to the location of structures or obstructions where clearances are close.

(Norfolk and Western Railway Company Operating Rules)

1051. Employees on or about tracks must be alert, watchful and keep out of danger, exercising care to avoid injury to themselves and others . . . .

(Norfolk and Western Railway Company Safety Rules)

## Analysis

There was no close clearance sign displayed on the loading dock adjacent to track No. 3 to provide adequate warning for switching crews. The brakeman was familiar with the territory involved and had worked this assignment on numerous occasions.

It is not known why the brakeman stepped into the curve at the close clearance point.

## Cause

The accident was caused by the brakeman's failure to remain clear of a visible obstruction.

BEST DOCUMENT AVAILABLE

REPORT: 64

RAILROAD: Consolidated Rail Corporation

LOCATION: Briarcliff Manor, New York

DATE: December 5, 1980

## The Accident

A 32-year-old carpenter and a 33-year-old carpenter were fatally injured on December 5, 1980 at about 1:35 p.m. in Briarcliff, New York. Employed by the Consolidated Rail Corporation (Conrail), the employees had 6 and 7 years of service, respectively.

## Background

The Scarborough Station is located in Briarcliff Manor, New York, on the carrier's Hudson Line, located approximately 29.5 miles from Grand Central Terminal in New York City. The four main tracks in the accident area are located on a 1-degree curve. The track grade is level. Two tracks are operated in an eastward direction and two in a westward direction under automatic block signal system rules. From the south, tracks No. 4 and No. 2 are used for eastward trains and tracks No. 1 and No. 3 are used for westward trains. The maximum authorized speed for passenger trains at the accident site is 60 mph on all tracks.

The accident occurred on track No. 3. The two carpenters and a foreman were assigned to repair a low-level wooden platform, located about 300 feet east of the high-level platform at Scarborough Station. A fourth employee, equipped with an audible warning device, was assigned as watchman and stationed himself approximately 400 feet east of the work site.

The carrier gives each employee a book of safety rules and conducts informal discussions of a different rule each day. The employees last attended a 4-hour annual regional safety meeting in May 1980.

## Circumstances of the Accident

When Amtrak train No. 73 approached at about 1:20 p.m., the watchman sounded his warning horn and the men cleared track No. 3. After train No. 73 passed, the carpenters went back to work cutting a plank. Witnesses stated that one carpenter using a chain saw was, facing north, away from the tracks. The foreman was holding the wooden plank that was being cut. The other carpenter was sitting on a curb next to the wooden platform on the north side of track No. 3, looking south toward the Hudson River.

A first class passenger train (No. 729) was operating westward on track No. 3. The estimated speed of the train approaching the accident site was 60 mph. This train was not scheduled to stop at Scarborough Station. The watchman first saw the train when it was 2,782 feet east of where the carpenters were cutting the plank. He immediately sounded his air horn to warn the men of the approaching train. When he realized that the men could not hear the horn because of the noise of the chain saw, he waived the horn over his head and began running toward the carpenters.

The engineer of the train stated that as he came around the curve, he saw the watchman about 100 feet ahead of him waving an air horn and then saw the carpenters about 600 feet ahead of the train, their backs toward track No. 3. He immediately made an emergency brake application and sounded the train's horn. The two carpenters did not move and were struck by the train.

## Applicable Rules

3204. Foremen are responsible for a safe operation and must exercise every reasonable precaution to protect men in their charge. They will assign gang watchmen when and where necessary as well as advance watchmen when needed.

. . . . . . . .

3207. When required, watchmen will if practicable, be stationed clear of all tracks at a point where they will have the best view of approaching trains in both directions, and a sufficient distance from the gang to prevent their attention being distracted by the work, but not further than his warning whistle can be distinctly heard except as follows:

. . . . . . . .

(b) Noisy machinery . . . may require additional gang watchmen.

3208. Gang watchman . . . must on approach of a train from either direction, warn gang in time for it to clear tracks at least 15 seconds before train reaches point of work. Additional warning may be needed around noisy machinery.

(Conrail Maintenance-of-Way and Structures Employees Safety Rule)

## Analysis

At the time of the accident, a watchman equipped with an audible warning device was posted 418 feet east of the work location. The carpenters heard the watchman signal the approach of train No. 73 about 15 minutes before the accident. At that time they cleared the track without incident. Apparently the foreman in charge of the work crew took no further precautions to insure safety while they were operating the chain saw near track No. 3.

## Cause

The accident was caused by failure to position an additional watchman closer to the carpenters to warn them of approaching trains while they were operating noisy machinery.

REPORT: 65

RAILROAD: Southern Pacific Transportation Company

LOCATION: San Antonio, Texas

DATE: December 18, 1980

## The Accident

A 29-year-old laborer/driver was fatally injured on December 18, 1980 at about 10:00 a.m. in San Antonio, Texas. Employed by the Southern Pacific Transportation Company, the laborer had 7 years of service.

## Background

In the accident area the tracks are designated from the north as the westward main, eastward main, west train yard lead, and west wheel yard loop. There is a crossover between the wheel yard loop and the train yard lead.

On the day of the accident, a portion of the eastward main track was out of service. Approximately 340 feet of track had been removed. Eastward traffic was being routed through the train yard lead track via crossovers on either side of the portion of track which was removed.

The maintenance-of-way employees began work at 7:00 a.m., installing drain pipes and engineering fabric for a fueling station. The laborer/driver, a foreman, and an apprentice foreman were engaged in inserting the engineering fabric. Other members of the maintenance-of-way crew were working about 300 feet westward.

The crew of the west train-yard lead switch engine consisted of a foreman, two helpers, and an engineer. They went on duty at 7:00 a.m. The engineer's position on the right side of the cab was on the opposite side of the excavation.

## Circumstances of the Accident

The foreman observed that the vehicle to which the laborer/driver was assigned was blocking the roadway and preventing another truck from entering the work area. The foreman instructed the laborer/driver to move the vehicle. Locomotive 2721 backed through the crossover from the wheel yard loop to the train yard lead track. The engineer was alone on the locomotive and the yardman, operating the power switch from a control panel, indicated that the switch was aligned for movement to the train yard lead. The engineer turned on the bell and began to move eastward at about 4 mph.

The foreman and the apprentice continued to install fabric between the drain pipe and the north side of the excavation. They were facing northward. They heard a scream and turned to see the laborer/driver being rolled under locomotive 2721. They called out and gave stop signals.

The engineer observed a violent stop signal being given by the helper located at the control panel. He stopped the movement, and the track foreman approached the locomotive and informed him that a man had been killed. The laborer/driver was behind the locomotive over the north rail.

## Applicable Rules

M.871 Foremen and others in charge of men working on or about track must guard their men against impending danger or injury.

. . . . . . .

A lookout equipped with a police whistle must be provided to warn of approaching trains, engines, or cars under the following conditions:

(a) When working on ladder tracks or other yard tracks, or main tracks within yards, upon which there are frequent movements.

. . . . . . .

(Southern Pacific Transportation Company - Rule and Regulations for the Maintenance-of-Way and Structures)

## Analysis

The accident occurred on the fourth day of the project. Lookouts were not posted even though the work was being performed near the train yard lead and the westward main track.

When the laborer/driver was rolled under the locomotive, it could not be determined if he had left the excavation or was struck by the pilot of the locomotive while he was still in the excavation. There were no witnesses to the accident, and the exact circumstances could not be determined.

## Cause

The employee was struck by a yard engine and rolled under the locomotive.

Failure to post watchmen may have contributed to the accident.

REPORT: 66

RAILROAD: Chesapeake and Ohio Railway Company

LOCATION: East Lansing, Michigan

DATE: December 18, 1980

## The Accident

A 31-year-old yard conductor was fatally injured on December 18, 1980 at about 6:30 p.m. in East Lansing, Michigan. Employed by the Chesapeake and Ohio Railway Company (CO), the yard conductor had almost 11 years of service.

## Background

In the accident area, identified as Trowbridge, the track layout from north to south consists of the Michigan State College spur track, the Grand Trunk Western Railroad Company's (GTW) interchange track, the GTW's westward and eastward main tracks, and the CO's single main track. The CO main track extends in a northwest-southeast direction and crosses the two GTW main tracks south of the accident point. Access to the GTW interchange track is gained from a CO main track switch located about 400 feet west of the CO/GTW intersection.

The CO yard crew consisted of an engineer, two brakemen, and a conductor. The crew went on duty at 4:00 p.m. at Ensel Yard in Lansing. The crew was assigned to Baltimore and Ohio Railroad (BO) locomotive No. 6944.

The yard conductor's last physical examination was held on April 30, 1979. He was issued a new book of railroad operating rules and attended an operating rules class on March 10, 1980.

## Circumstances of the Accident

The crew left Ensel Yard and proceeded eastward to the Michigan State University's power plant, east of Trowbridge. The crew switched cars at the power plant. The engineer, conductor, and front brakeman rode the locomotive and pulled about 20 cars westward to Trowbridge. The other brakeman closed the main track switch at the power plant and walked to the east end of the GTW interchange track. There were 29 empty hopper cars on the GTW interchange track which were to be moved to the CO's Ensel Yard. The second brakeman inspected the east hopper car and noted that the angle cock was closed on the east end of the car.

The front brakeman and the conductor performed switching operations at Trowbridge prior to delivery of 15 cars to the GTW interchange track and the pickup of the 29 empty hopper cars. The front brakeman boarded the locomotive and rode with the engineer to pull the 29 empty hopper cars and couple them to the 15 cars on the east end. The second brakeman arrived in the vicinity of the conductor as the delivery of the 15 cars was being completed.

In preparation for the delivery of the 15 cars, the locomotive pulled 55 cars westward, clear of the Michigan State College spur track switch. The conductor instructed the engineer to push the cars eastward via radio. The conductor governed the movement by giving the engineer the following orders: "eight car lengths," "four car lengths," and "that will do."

The second brakeman climbed the ladder on a loaded hopper car (CO 87509), the west car of the 15 cars, to set a hand brake. While he was climbing the ladder, he noticed a separation of about 8 feet between CO 87509 and the next car to the west (CO 147810). The brakeman was facing east as he was setting the hand brake on the moving cars. Before the brake was fully applied, the cars moved westward and struck CO 87509. The brakeman looked down, and saw the conductor pinned between the couplers of the two hopper cars.

An ambulance and paramedic team were sent to the accident site. The conductor was rushed to a local hospital where he died at 10:05 p.m.

## Applicable Rules

122. Going between or in front of moving engines or cars to couple and uncouple, adjust couplers, knuckles, or lock pins; or to manipulate angle cocks is prohibited.

. . . . . . . . .

124. Before going between standing engines or cars to couple, uncouple, or make adjustments, observe the following:

    (a) Have a clear understanding with all persons involved to protect against any movement of the equipment.

(b) Wait until slack has adjusted, paying particular attention to cushion underframe cars.

(Chessie System Safety Rules)

## Analysis

When delivering cars to the GTW interchange track, CO employees close the angle cock on the west car of those which are "set off."

A post-accident inspection revealed that the angle cock was closed on the east end of CO 147810, and the angle cock was open on the west end of CO 87509. The couplers were closed on both cars.

After the conductor gave the last radio message to the engineer, the conductor apparently operated the uncoupling lever on hopper car CO 87509, separating it from hopper car CO 147810. This separation caused an emergency application of the brakes on CO 87509 and the 14 cars east of it. The 15 cars came to a stop. The conductor operated the uncoupling lever and apparently went between the cars to close the angle cock on car CO 87509 before the cars coupled to the locomotive stopped. The movement was being made eastward on an ascending grade, and the cars were stopped by use of the locomotive's independent brake. This allowed sufficient slack to run out and pin the conductor between the two couplers.

## Cause

The conductor failed to wait until the slack had adjusted and all cars had come to a complete stop before performing work between the hopper cars.

REPORT: 67

RAILROAD: National Railroad Passenger Corporation

LOCATION: Plainsboro, New Jersey

DATE: December 19, 1980

## The Accident

A 34-year-old maintenance-of-way repairman was fatally injured on December 19, 1980 at about 12:12 a.m. in Plainsboro, New Jersey. Employed by the National Railroad Passenger Corporation (Amtrak), the employee had 4 years of service.

## Background

The accident occurred on the Northeast Corridor main line at Mile Post 45.9. At this location, there are four main tracks numbered 1, 2, 3, and 4. Trains normally operate eastward on track No. 1 and westward on track No. 4. Through the use of a traffic control system, trains can operate in either direction on tracks No. 2 and No. 3. The maximum authorized speed for passenger trains in the accident area is 100 mph on tracks No. 1, No. 2, and No. 3; and 110 mph on track No. 4. From the point of the accident, the track is tangent for a distance of 5.8 miles to the east and 4.5 miles to the west. The track grade in the accident area is 0.2 percent ascending eastward.

The carrier issues safety rule books to all maintenance-of-way employees and conducts a "Safety Rule of the Day Program" with every crew at a brief safety meeting each workday.

## Circumstances of the Accident

The accident occurred on track No. 1. The repairman was standing between tracks No. 1 and No. 2 watching a tamper work around an insulated joint location on track No. 2. Another repairman was located on the opposite side of the tamper between tracks No. 2 and No. 3. The second repairman stated that these were their usual positions when tamping near an insulated joint, since the tamper's rail clamps sometimes slip off the rail.

Train No. 106, a first class passenger train, was operating eastward on track No. 1. Approaching the accident point, the engineer estimated his speed to be 100 mph. He saw the tamper on track No. 2 and began sounding the horn to warn employees in the area. As the train moved closer to the equipment, the engineer saw that the repairman was standing between tracks No. 1 and No. 2, facing the tamper but not clear of track No. 1. When the repairman did not react to the sound of the train's horn, the engineer made an emergency brake application approximately 500 feet from the point of the accident. The repairman was struck by the train and killed instantly.

## Applicable Rules

4120. Walk, stand or sit on track . . . only if required in the performance of duty.

. . . . . . . .

4123. Look in both directions for approaching train before performing any of the following acts associated with track.

. . . . . . . .

(c) Any other operation or situation where moving train hazard exists.

. . . . . . . .

4127. When necessary to walk on track:

. . . . . . . .

(b) Maintain sufficient lookout in both directions to see on which tracks trains approach.

4128. When walking alone on track:

(a) Assume a position and perform work in such a manner that will permit making frequent observations in both directions to see on which tracks trains approach.

(Amtrak Safety Rule for Maintenance-of-Way Employees)

## Analysis

At the time of the accident, the tamping equipment operators were in the operating cabs of the machines, and the work crew was checking crosslevel on track No. 2. Watchmen were not posted since neither employees nor equipment were on adjacent tracks. The repairmen apparently placed themselves near the tamper without the knowledge of the foreman in charge. After the accident, the foreman stated that when he heard the horn of train No. 106, he looked up and saw the repairman standing next to the tamper and not clear of the adjacent track.

## Cause

The accident was caused by the failure of the repairman to make frequent observations in both directions for approaching trains.

A contributing factor may have been noise from the tamper preventing him from hearing the approaching train.

**REPORT:** 68

**RAILROAD:** Consolidated Rail Corporation

**LOCATION:** Mingo Junction, Ohio

**DATE:** December 23, 1980

## The Accident

A 55-year-old yard brakeman was fatally injured on December 23, 1980 at about 11:20 a.m. in Mingo Junction, Ohio. Employed by the Consolidated Rail Corporation (Conrail), the brakeman had 28 years of service.

## Background

The yard has 17 tracks connected at both ends. The tracks run west to east and are numbered north to south. In the accident area, all tracks have a slightly descending grade from west to east. This requires employees to be positioned on moving cars in order to control the cars speed by using hand brakes.

The accident occurred on track No. 466. The brakeman was a member of a yard switching crew which consisted of a conductor, two brakemen, an engineer, and a fireman. The crew had been on duty for 3 hours and 50 minutes after completing the required off-duty period. Just before the accident, the crew began switching a cut of 57 cars. The locomotive was on the west end of the cars.

The employee was last examined on the "Rules of the Transportation Department" on October 14, 1980. His last physical examination was administered and passed on October 15, 1979.

## Circumstances of the Accident

The brakeman was last seen walking westward toward a cut of two cars, moving eastward under their own momentum, down the lead track toward track No. 476. He mounted the east end of the lead car and applied the hand brake. The cut of cars went into track No. 466, which was fouled by a cut of 14 cars standing on track No. 468. The lead car struck the northwest corner of an empty box car on track No. 468, pinning the brakeman against the brake wheel and brake wheel housing. The brakeman was pronounced dead at the scene.

## Applicable Rules

General Rule B . . . .

> They must follow instructions from proper authorities and must perform all duties efficiently and safely.

(Conrail Rules of the Transportation Department)

## Analysis

There were no witnesses to the accident, and the exact circumstances could not be determined. Neither could it be determined why the cars went onto track No. 466 rather than track No. 476.

## Cause

The accident was caused by the apparent failure of the brakeman to properly line the switch to track No. 476 before mounting the moving cars.

**REPORT:** 69
**RAILROAD:** Union Pacific Railroad
**LOCATION:** Yermo, California
**DATE:** December 24, 1980

## The Accident

A 22-year-old switchman was fatally injured on December 24, 1980 at about 2:35 p.m. in Yermo, California. Employed by the Union Pacific Railroad (UP), the switchman had 2 years of service.

## Background

The yard is located north of the main track and has 11 tracks connected at either end to auxiliary tracks. In the accident area, the yard tracks have a 1-percent descending grade from west to east.

The accident occurred on track No. 8. The switchman was a member of a yard switching crew that consisted of a switch foreman, two switchmen, and an engineer. The crew had been on duty for 6 hours and 36 minutes after completing the required off-duty period. Switching was being performed from the west. Cars were uncoupled and switched onto several yard tracks.

The employee passed the UP operating rules examination on January 15, 1979. His last physical examination was administered and passed on December 26, 1978.

## Circumstances of the Accident

The switchman rode a cut of three cars switched onto track No. 7 and applied the hand brake on the east car. A few minutes later he boarded a cut of 11 cars and was seen riding the cars onto track No. 8. The remainder of the crew continued to work, and eight additional cars were switched onto track No. 8. Several minutes later, two more cars were switched onto track No. 8.

After completing this work, the switch foreman and the switchman working on the lead track rode the locomotive onto track No. 9 and coupled it to the cars on that track. The switch foreman observed that the other switchman was not in the area. The switch foreman and switchman began to look for him.

The switch foreman found the switchman lying over and parallel to the south rail of track No. 8, 0.5 mile east of the west switch to track No. 8. The switchman lay face up with his head and the right side of his body inside the south rail. He had been run over by freight cars.

## Applicable Rules

M. Employees must exercise care to prevent injury to themselves or others . . . . Employees must expect the movement of trains, engines, cars or other moving equipment on any track, at any time, in either direction.

804. Switching must be performed promptly and efficiently and in such a manner which will avoid personal injury, damage to lading, equipment, structures or other property.

(Union Pacific Railroad Operating Rules Governing Train and Yard Service)

## Analysis

The wheels of the third and fourth cars and two wheels of the fifth car in the group of 11 cars showed evidence of having passed over the switchman. There were no witnesses to the accident, and the exact circumstances could not be determined.

## Cause

The employee apparently failed to stand clear of equipment on track No. 8 as other cars were switched onto the track.

**REPORT:** 70

**RAILROAD:** Chicago and North Western Transportation Company

**LOCATION:** Cedar Rapids, Iowa

**DATE:** December 28, 1980

## The Accident

A 32-year-old switchman was fatally injured on December 28, 1980 at about 5:05 p.m. in Cedar Rapids, Iowa. Employed by the Chicago and North Western Transportation Company, the switchman had 3 years of service.

## Background

The yard is a flat switching yard with 20 tangent tracks connected at both ends. Two lead tracks provide access to the yard tracks from the south. The south lead track provides access to tracks No. 2 through No. 12. The north lead track provides access to tracks No. 12 through No. 22. A yardmaster issues instructions to the yard crews by switch list and radio.

The accident occurred on the north lead track. At the time of the accident, two yard crews (Job 6 and Job 11) were working in the yard. The switchman was a member of yard Job 6, which consisted of a foreman, two switchmen, and an engineer operating locomotive CNW 4457. The crew had been on duty for 1 hour and 35 minutes after completing the required off-duty period. Yard Job 11 consisted of a foreman, two switchmen, and an engineer operating CNW 144, a yard switcher locomotive.

The switchman was last examined on the carrier's operating and safety rules on June 20, 1980. His last physical examination was held on September 6, 1979.

## Circumstances of the Accident

Shortly before the accident, the yardmaster instructed the crew of Job 6 to move a freight car from track No. 3 to track No. 12. Two crew members on the ground were using lanterns to pass signals. The switchman and engineer were in the control compartment of locomotive CNW 4457. Job 6 coupled onto the cars on track No. 3 and started to move southward on the south lead track. The switchman told the engineer that he was going to observe the move and left by the fireman's door, leaving his lantern in the control compartment of the locomotive.

The yardmaster also instructed the crew on Job 11 to proceed to track No. 12 and place the car being moved by Job 6 into a transfer train that was being assembled. The engineer of Job 11 advised the crew on Job 6 that his crew intended to move northward on the north lead track. The foreman of Job 6 and the foreman of Job 11 discussed the movement of the car. Job 11 moved northward about 300 feet and stopped to wait until the crew of Job 6 moved the car onto track No. 12.

The switchman who had previously left the control compartment of CNW 4457 was found between the rails of the north lead track, 110 feet south of Job 11's locomotive. The employee sustained severe traumatic injuries and died instantly.

## Applicable Rules

127. Walking directly in front of moving car or engine for any purpose is prohibited.

(Chicago and North Western Transportation Company, General Regulations and Safety Rules)

## Analysis

Marks on the north rail showed that the north wheels of the freight car and locomotive passed over the employee's body which was dragged 50 feet north. There were no witnesses to the accident, and the exact circumstances could not be determined.

It appeared that the accident occurred when the locomotive and car of Job 11 moved the final 300 feet on the north lead track.

## Cause

The employee failed to exercise due caution and apparently walked in front of moving equipment on the north lead track.

REPORT: 71
RAILROAD: Norfolk and Western Railway Company
LOCATION: Marion, Virginia
DATE: December 31, 1980

## The Accident

A 56-year-old brakeman was fatally injured on December 31, 1980 at about 6:40 p.m. in Marion, Virginia. Employed by the Norfolk and Western Railway Company, the brakeman had 33 years of service.

## Background

In the accident area there is a single main track over which trains operate by a traffic control system. To the north and parallel with the main track there is a passing siding which is 5,703 feet in length and extends eastward from Marion Station. An industry spur track (Brunswick Track) enters the main track from the south, 1,600 feet west of the east siding switch. At the east end of the siding there is a 1° curve to the north, and the grade is 1.14 percent descending westward.

The accident occurred on the Brunswick Track. The employee was the head brakeman of a road freight train crew that consisted of a conductor, two brakemen, and an engineer. The crew had been on duty for 2 hours and 40 minutes after completing the required off-duty period.

The brakeman last attended a carrier's operating and safety rules class on September 4, 1980. Other crew members attended operating and safety rules classes within a 4-month period of the accident.

## Circumstances of the Accident

Train 4BR-22 Extra 796 East consisted of five locomotive units, 58 cars, and a caboose. The train departed Bristol, Virginia, at 4:50 p.m. with work to be performed at Marion, Virginia. Before leaving Bristol, the conductor informed the two brakemen of the work that was to be performed at Marion. The conductor gave his instructions to the head brakeman. The rear brakeman had approximately 3 months of experience and was not familiar with the area or the type of work which was to be performed. The conductor instructed the head brakeman to have the inexperienced rear brakeman remain on the locomotive at Marion.

The train operated through the siding at Marion and stopped clear of the main track at the east end. The head brakeman went to make a cut behind the third car. The engineer told the rear brakeman to get off the locomotive and assist in the move. As the locomotive units and three cars moved east from the siding onto the main track to clear the interlocking signal, the rear brakeman walked westward and lined the switch for movement to the Brunswick Track. The train dispatcher was unable to clear the signal for westward movement on the main track, and instructed the crew to pass the interlocking signal and proceed westward to Marion Station at a restricted speed.

The movement entered the Brunswick Track at a speed of 18 to 20 mph and struck a standing covered hopper car. The head brakeman was riding on the lead car and was apparently thrown to the ground by the impact. He was struck by the derailed equipment and pronounced dead at the scene of the accident.

## Applicable Rules

### CONDUCTORS

555. They must, when necessary, instruct other members of their crew as to the proper performance of their duties.

. . . . . . .

### TRAINMEN

565. Trainmen report to the Trainmaster or other designated officer and must obey the orders of their conductor, . . . .

Restricted Speed - A speed that will permit stopping short of train, engine, obstruction or switch not properly lined and looking out for a broken rail, but not exceeding 15 miles per hour.

(Norfolk and Western Railway Company, Operating Rules)

## Analysis

Before the switching movements began at Marion, proper instructions were not given to all the crew members by the conductor. The movement was also exceeding the 15-mph speed restriction in effect at the time of the accident.

The conductor did not intend to use the rear brakeman in the operation. In a post-accident interview, the conductor stated that he did not inform the terminal supervisor of this prior to the train's departure.

## Cause

The accident was caused by failure to control the speed of the movement, in accordance with the restricted speed rule.

Failure of the conductor to issue proper instructions to all crew members was a contributing factor.

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